CIO

THE MAGAZINE FOR INFORMATION EXECUTIVES

DECEMBER 1, 1993
VOLUME SEVEN NUMBER FIVE
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COVER STORY

Open Systems: *Learning To See The Forest For The Trees*

ALSO INSIDE

How Customer Demand Is Fueling New Forms Of Outsourcery

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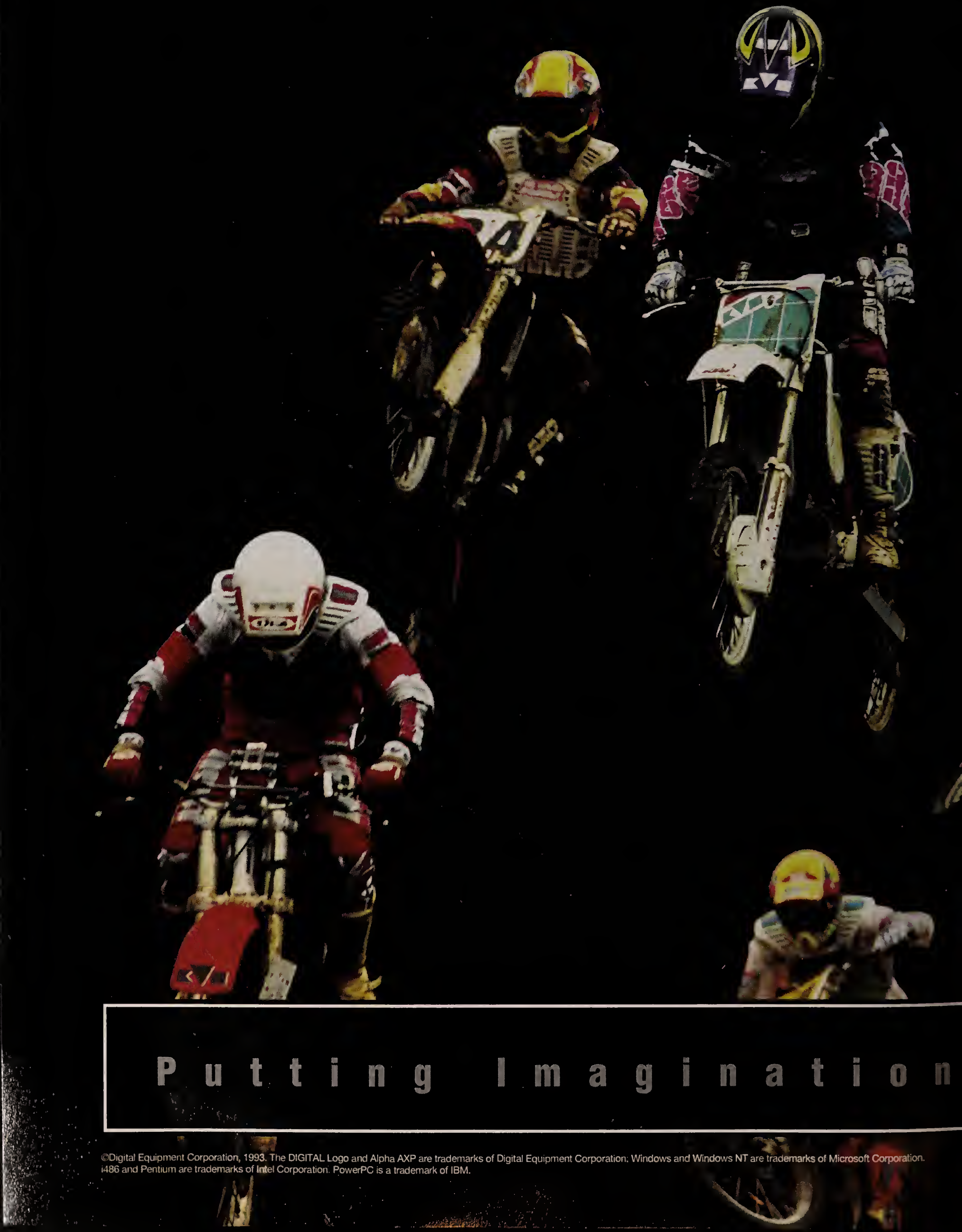

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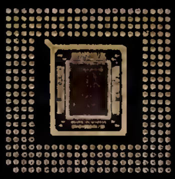

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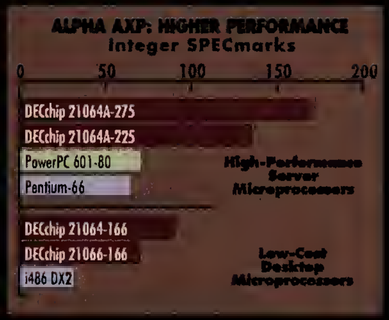

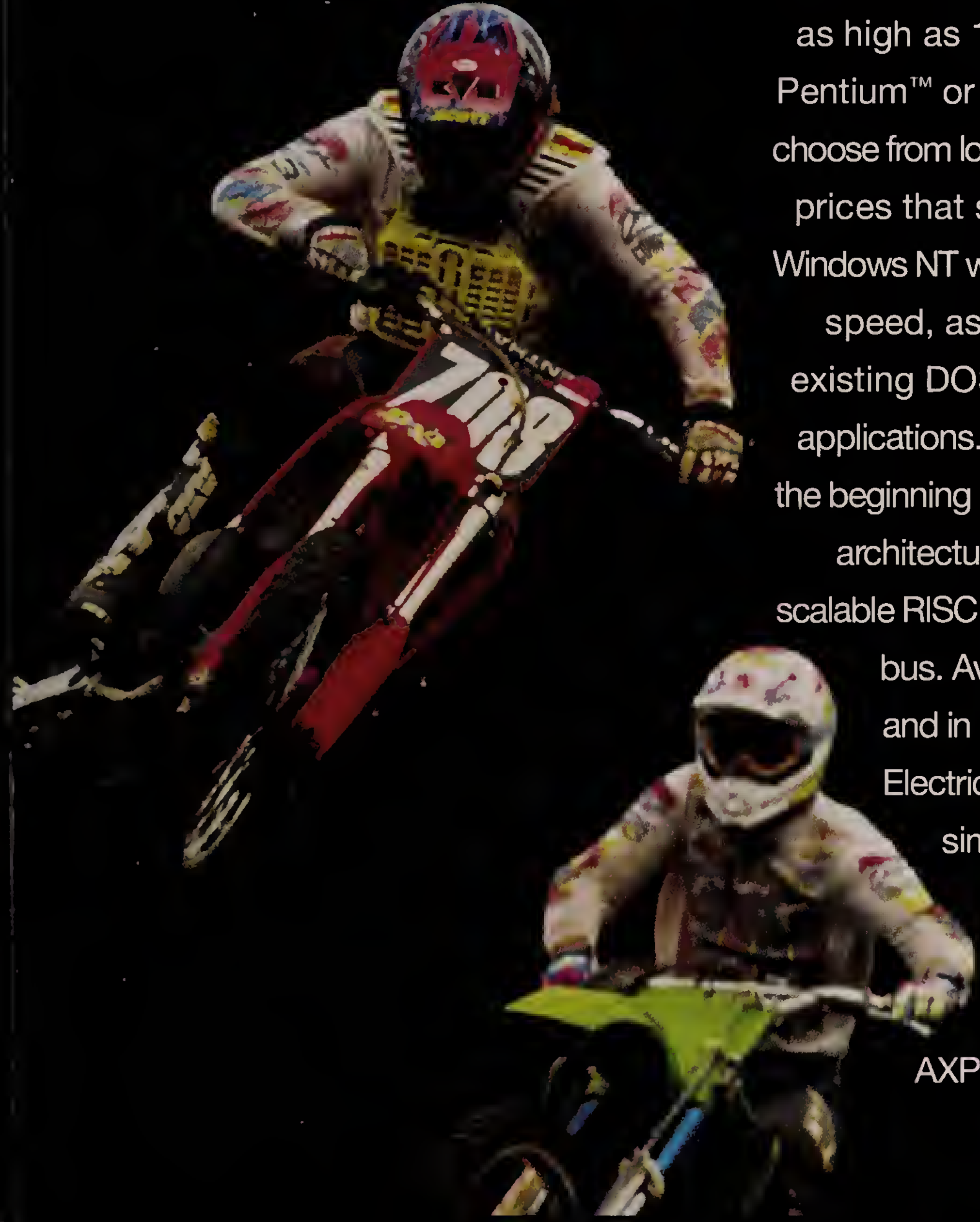

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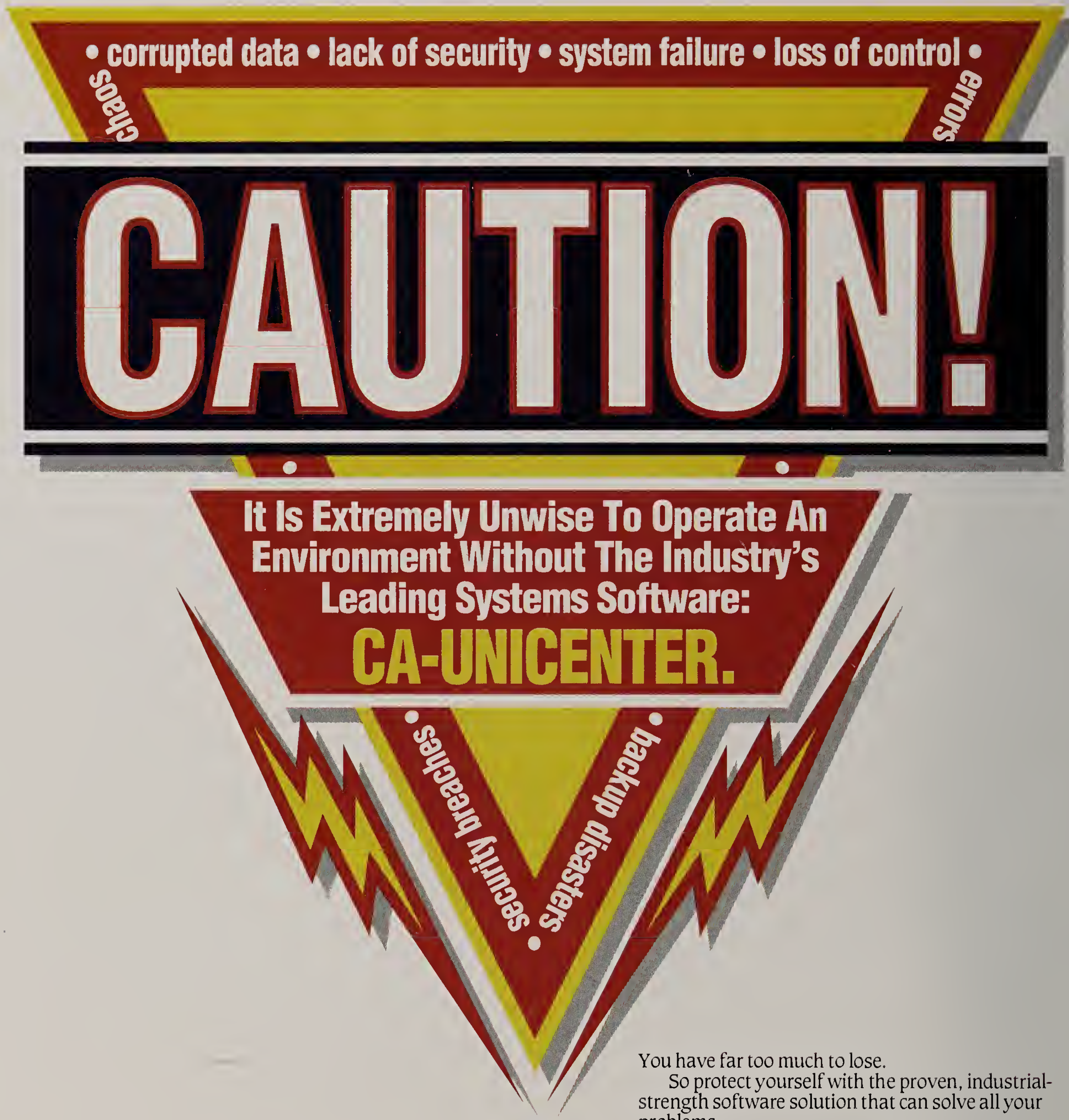
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Cover photo by
Alexander Mares-Manton

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A Gradual Opening

The move to nonproprietary, client/server-based systems is on. But the transformation needn't be precipitous.

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Not content to simply get orders out on time,companies are taking a holistic, customer-focused approach to streamlining the distribution process.

By Megan Santosus

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The next wave of outsourcing contracts is giving customers greater control over their dearly departed IS resources. Covering shorter periods and bundling together services, these agreements offer customers new flexibility in terms and technology.

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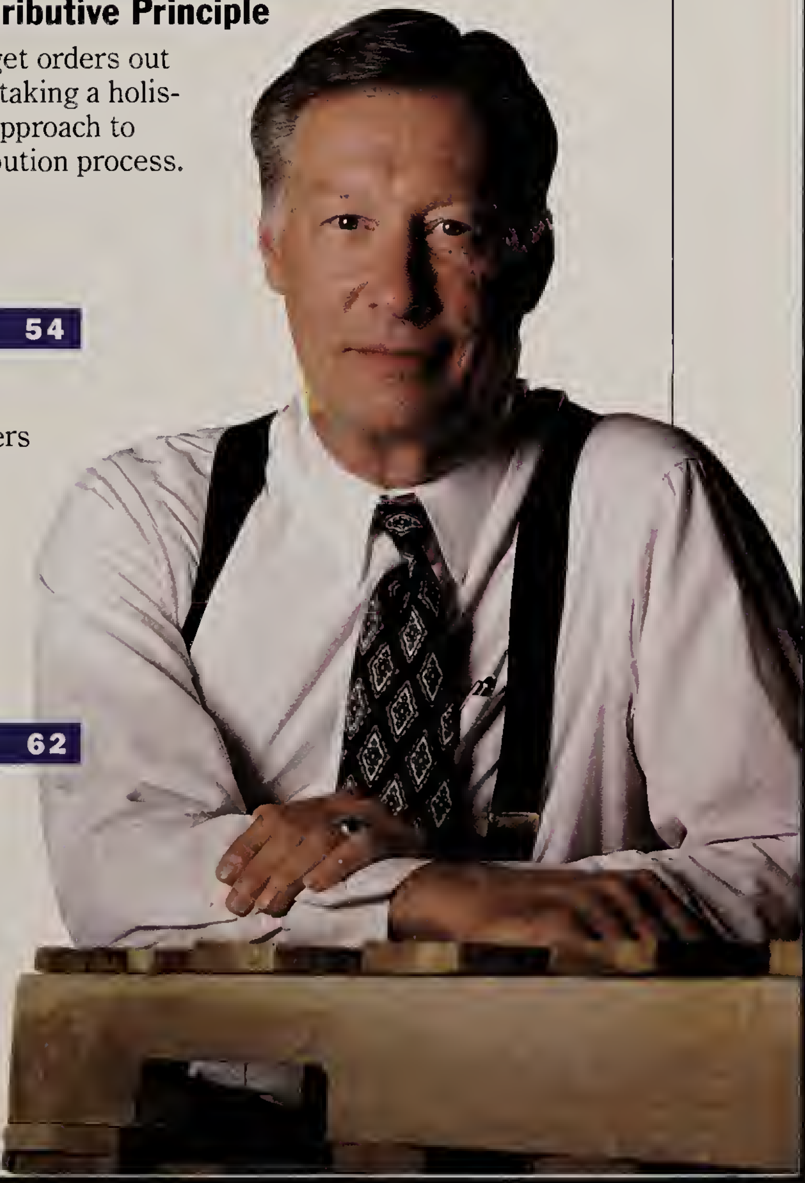
The Year in Review

An index of all major articles published in *CIO* in 1993, including a cross-reference by article type.



The supply-chain gang
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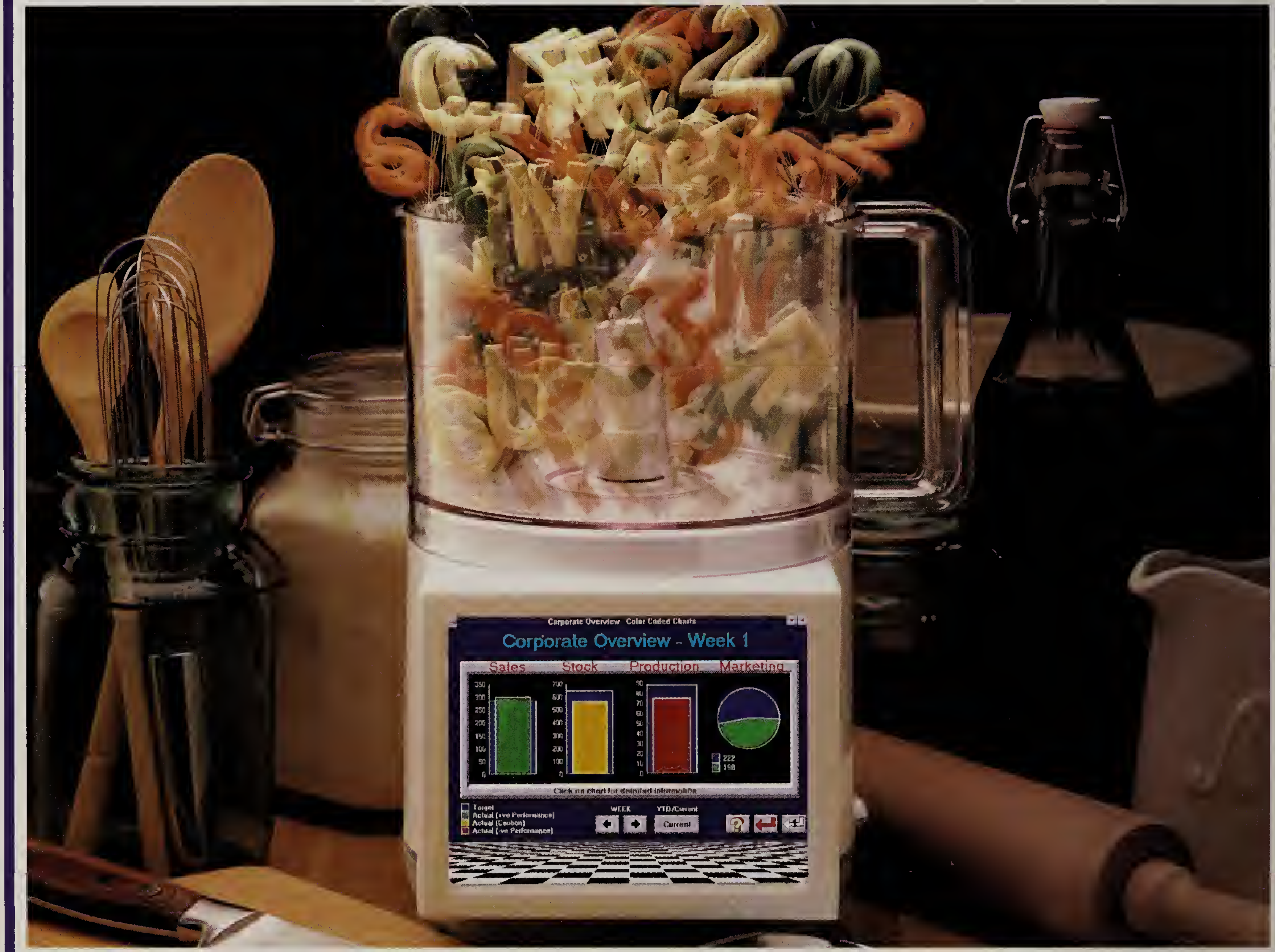

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CIO

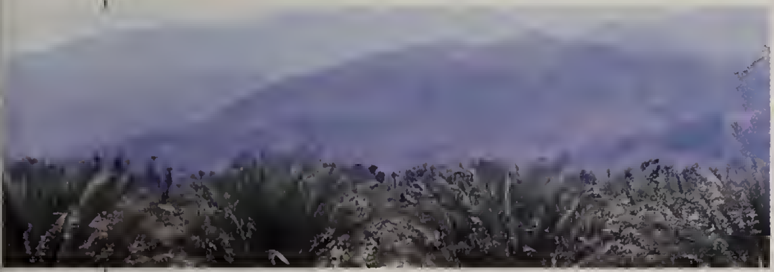
COLUMNS

CIO CONFERENCE 26

NOTEBOOK: BUSINESS OR BUST

The topic was politics, but the talk at CIO's recent conference kept circling back to one point: If you're not adding business value, you're not doing your job.

By Jason S. Casey



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PROJECT MANAGEMENT 70

STATE OF THE ART: WISE CHOICES

Effective project management is not impossible—all you need is the right manager, the right software and the right attitude.

By Tracy Mayor

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WORKING SMART: PUBLISH OR PERISH

Faced with strict SEC requirements and increasing competition, Fidelity Investments had no choice but to speed up its mailings of shareholder reports. After reengineering the process and implementing an electronic-publishing system, the company's payback was even greater than expected.

By Nancy Hitchcock

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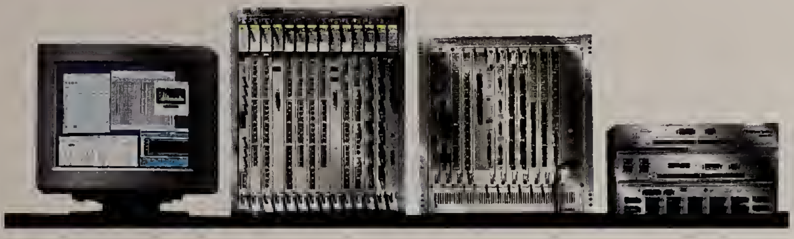

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LETTER FROM THE EDITOR

Outsourcing and open systems, certainly two major concerns of information executives, are taking on new spins.

Only three or four years ago, outsourcing was seen as an all-or-nothing proposition. Not anymore. In his look at limited-engagement, selective outsourcing (please see "Short Terms of Agreement," beginning on Page 54), Senior Writer Richard Pastore observes that vendors are offering an a la carte menu of services. Vendor/client relationships are also changing, to the customer's advantage.

In some cases, this sort of outsourcing is transitional, giving IS executives a way of offloading the pesky maintenance of legacy systems while their in-house professional staff concentrates on developing applications for a distributed information architecture. In other situations, CIOs farm out network management, disaster recovery, help-desk operations and application-migration assistance.

With new technology options arriving at the doorstep almost daily, CIOs don't want to be burdened with long-term contracts with outsourcers. Because selective outsourcing isn't hinged to a long-term mainframe contract, some CIOs are renegotiating parts of the outsourcing contract as frequently as monthly. And sometimes these services may even be priced according to how much value they provide a customer.

Another IS undertaking with fast-paced action is the creation of an open-systems environment. Yet most information executives are looking for a gentle transition, according to Contributing Writer David Freedman in "A Gradual Opening," beginning on Page 44.

Some CIOs believe that Unix is not yet up to the task of handling critical applications such as financial services and human resources, and that security and transaction-processing capabilities are inferior to those in a mainframe environment. However, many vendors are beginning to develop Unix versions of their mainframe offerings, knowing that the transition to open systems—in essence the client/server environment—is just a heartbeat away.

As technology options and new computing platforms proliferate, information executives are challenged to explore the many methods for adapting to change.

Marcia Blumenthal

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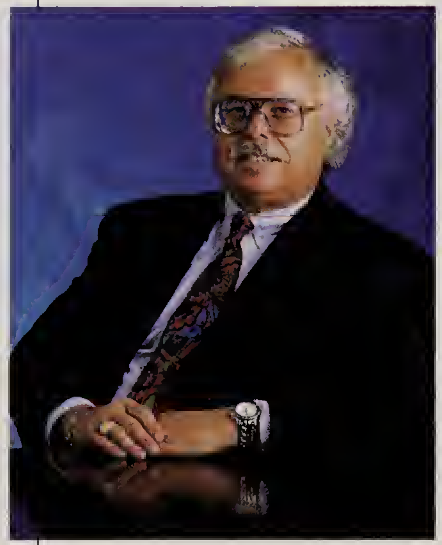

PHOTO BY WEBB CHAPPELL

It's hard to say farewell to 1993. This was a banner year for *CIO*. Circulation grew to 80,000, each Perspectives Conference attracted more than 400 participants, we announced a frequency increase from 18 to 21 issues, and—the creme de la creme—we won "Best Computer Magazine" in the Computer Press Association awards competition.

In part, these milestones were made possible by you, our readers. With your support and loyalty, *CIO* has made tremendous strides in the past six years. You have told us what you wanted out of an information source, and *CIO* has done everything in its power to live up to your expectations. By focusing on your needs, *CIO* has accomplished what it set out to do—provide strategic technology-management solutions for top-level management.

Next year will be a challenge. We aim high, and there is always room to improve. We are expanding our staff and purchasing additional information technology to strengthen the effectiveness of our design and editorial departments. We will continue to study the market and our audience to ensure that we bring you the information you require to successfully manage the enterprise.

As we approach the end of 1993, I'd like to take this opportunity to thank *CIO* readers, advertisers and our supporters throughout the IT industry for their contributions to our success. I wish all of you a safe and happy holiday season.

P.S. Registration is underway for the next *CIO* Perspectives conference, "Re-Visioning IT: Achieving an Enterprise Perspective," to be held March 13-16 at the Hyatt Grand Cypress in Orlando, Fla. To ensure your participation, please call our toll-free registration hot line at 800 366-0246.

Coming In CIO

Trading Places

People say you can't teach an old dog new tricks; but some organizations are disproving that theory. Mattel's former comptroller, who used to gripe about the toy-maker's IS department, is now running the ship and earning his IS stripes. Contrariwise, a former top IS executive at Brooklyn Union Gas has been put in charge of customer service there, and his long experience with technology is turning out to be just what the position ordered.

Peters' Principle

Management guru Tom Peters says reengineering is too often used "as some kind of generic catch-all, capture-all, reinvent-the-planet notion." Although he doesn't knock the process, he says reengineering is not the answer to a company's problems—knowledge management is. Peters tells *CIO* readers why they have to get back to the basics.

We Give Awards

An important way of relating IS to the enterprisewide strategic vision is demonstrating IT's positive impact on the organization. In our next issue, we will profile the winners of the first annual Excellence in Strategic Partnering for Return on Investment from Information Technology awards, sponsored by *CIO* Magazine and Booz·Allen & Hamilton. All six winners have built strong partnerships between IS and their business-unit clients and achieved quantifiable payback from their systems.

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Without a way to order, filter and control data, having access to unlimited information can be of questionable value. The Electronic Books '93 conference in New York this fall demonstrated some intriguing means of achieving control and suggested the richness of experience that can be had in the process.

How useful would it be to have sitting on your desk 12 issues of *Newsweek*, 200 articles from *The Washington Post*, the full findings of an extensive survey, numerous charts and still photos, cassette tapes holding hours of radio segments and videotapes containing an assortment of clips? Now imagine combining all that as background data on one CD-ROM containing two or three original multimedia stories on topics of particular interest to you. That's the promise of *Newsweek InterActive*, which features 12-to-15-minute video documentaries that you can start and stop at will to select text, charts, video clips, voice interviews, animations, simulations and other forms of information. Menus and hypertext links allow you to drill down to more-extensive information, all of it completely searchable (by word or in Boolean mode).

Trying to *write* about multimedia is like trying to show 3-D on paper. The combination of words, music, narration, conversation, and both motion and still imagery in an interactive format is more than the sum of its parts, adding new value to the experience of "reading."

Consider the offerings of Voyager Expanded Books, another pioneer on the electronic-publishing frontier. Open a "book" of poetry, read the text and then push a button to hear and see the poet reading her own work. Then bring

(cont. on page 18)

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HYPERFICTION

SOME NOVEL APPROACHES

It sometimes seems that literary phenomena don't officially exist until they're blessed by a nod from the *New York Times Book Review*. Well, hyperfiction—computer-borne hypertext novels—got a splashy validating nod in the Aug. 29 issue of the *NYTBR*. Writer Robert Coover (who once penned a traditional paper-borne novel about a man who presides over an entirely imaginary baseball league in his basement, a precursor to rotisserie baseball) was accorded a rare five-plus pages of space to write about hyperfiction generally and to review in brief exactly 11 examples of the genre (which Coover asserts is the entire commercially available inventory of serious hyperfiction published to date).

In his main article, Coover, who teaches writing at Brown University in Providence, R.I., and runs an experimental hyperfiction workshop there, uses a novel called *Victory Garden*, by hyperfictionist Stuart Moulthrop, to illustrate the author-architected flexibility of the genre. Readers can travel by whim, making spontaneous leaps to and from the successive options each screen presents; or they can plan their itineraries, courtesy of a "map" that delineates the fictional geography (unsurprisingly, in Moulthrop's case, a victory garden).

But hyperfiction's sizzle is no guarantee of weird new steak. Despite its nonlinear and interactive values, which allow readers to "acquire" the narrative in an unconventional way, the medium's many unseen, unopened windows may shelter little more than highly conventional stories. And, as Coover also points out, bad writing is still bad writing, just as it is on paper.

Why the attention? Because the technology of hypertext and

(cont. on page 18)

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TRENDLINES

PUBLISHING

continued from page 16

up an interview with the poet or her biographer. You could even take a video tour of the writer's hometown or find out what she was reading when she wrote the work in question.

Some of the most-marketable electronic books right now are not what we think of as multimedia. Reference works by a number of publishers include dictionaries, thesauri, encyclopedias, foreign-language phrase books and more. Search and text linkage (and sound, for some phrase books) make these much more navigable than the bound versions.

If conference participants are correct, the future of publishing—the formal dissemination of information—is digital, interactive and at least somewhat multimedia. Far from eclipsing the value of the written word, this many-faceted approach may be the best thing to happen to text since the invention of television, according to Michael Rogers, managing editor of *Newsweek InterActive*. "It restores text and still photography to parity with video."

HYPERFICTION

continued from page 16

hypermedia irresistibly invades conventional terrain; and because vast libraries of information can be carried now in a coat pocket, with hyperlinks offering a useful, creative method for orderly navigation among related shards of text, graphics, photography, video and sound (see "Reading Behind the Lines").

In fact, it's fairly easy to see the business implications of these linking techniques as a way of coping with overwhelming volumes of information. But what Coover observes about the relatively slow progress of hyperfiction is the daunting limitlessness of the blank canvas (and the relatively limited scope of the audience): "For the narrative artist, hyperspace has all the charm of a starry sky in August: The weather's comfortable, the twinkle's alluring, but the vista's intimidating, and there are no reliable star charts.

"It is pretty empty out there, too," he writes, adding an important hyperspace marketing question: "Where are the readers?"

SAVE OUR SCHOOLS

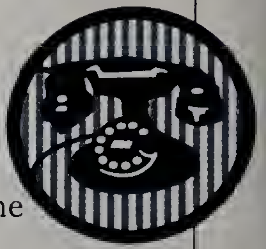
While government and industry are busy haggling over the construction of the Information Highway, an important driver's ed course for future navigators of that winding road is in danger of shutting down.

Because of budgetary pressures, the University of California, at Los Angeles, is thinking seriously about terminating its graduate programs in library and information science. The Information Industry Association (IIA), which represents hundreds of companies involved in the generation, processing, distribution and use of information products and technologies, says such an action will "jeopardize the future of the information industry."

"The ability of [the information industry] to succeed in an increasingly competitive global marketplace will depend, to a large extent, upon the existence of qualified and expert information professionals, such as those produced by UCLA's Graduate School of Library and Information Science," writes IIA President Kenneth B. Allen, in a letter to UCLA's director of academic planning and program review.

The director, Karen L. Merritt, blames the possible action on the drastic decline in state support for higher education, which has hit California particularly hard. She says the proposal is being reviewed and that affected students and faculty will have a chance to comment before a final decision is made.

BAR CODES BEHIND BARS



Public-telephone hogs provoke violent urges in the most mild-mannered citizens; imagine their effect on hardened criminals. "We've had people killed over the telephones," says Richard Shapiro, associate correction commissioner of New York City's jails.

New York's correctional facilities recently implemented bar-coded charge cards as a way to ration prisoners' telephone use and reduce the fistfights that were increasing tension in the cellblocks and running up medical costs. Previously, overworked officers were expected to ensure that inmates did not exceed their court-permitted number of calls; but some of the prisoners—particularly the bigger, stronger ones—managed to evade these restrictions.

Under the new system, four of New York's correctional facilities have been equipped with telephones that feature laser readers. Some 3,500 inmates display bar codes on special IDs to the readers and then punch in their personal identification numbers. If an inmate has money in his commissary account and has not used up his weekly allotment of calls, the system will allow the call and debit the account. Inmates who exceed their phone privileges are cut off automatically.

Because different prisoners have different phone privileges, the system is programmed with information such as their legal status (convicted or detained, for example) and housing-security classification.

ILLUSTRATION BY VICTORIA KANN

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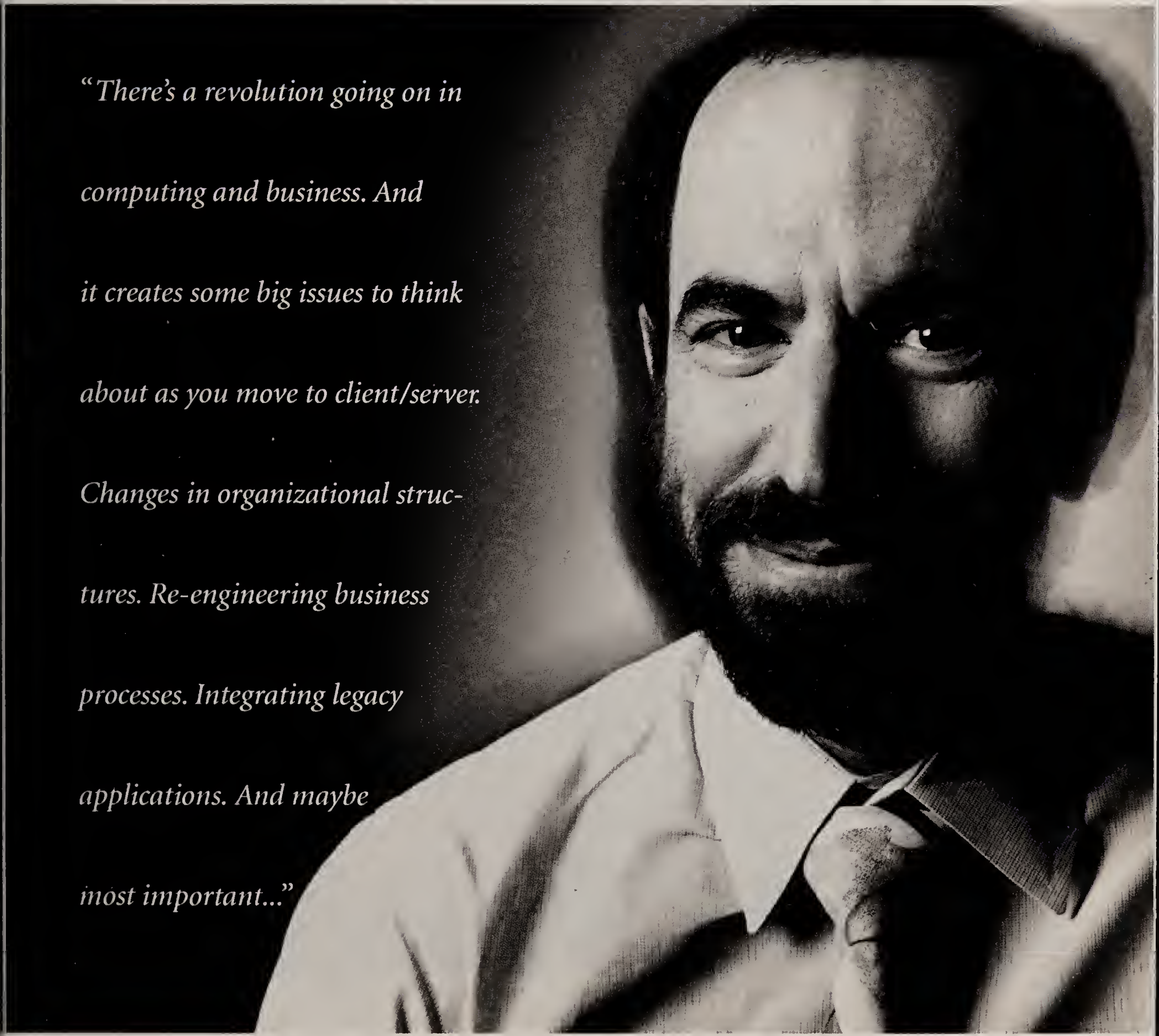

"There's a revolution going on in computing and business. And it creates some big issues to think about as you move to client/server. Changes in organizational structures. Re-engineering business processes. Integrating legacy applications. And maybe most important..."

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Enrico Caruso

Etta James

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The IEF for Client/Server can develop applications very quickly – within weeks – and with unsurpassed functionality. And thanks to its flexibility and reusable design, each new client/server system can be developed faster than the previous one. So you can improve productivity at a faster tempo.

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TRENDLINES

Corrections officials also expect the system to eliminate massive phone bills resulting from unauthorized phone use. Last month alone, the city accumulated $5,000 in untraceable calls—a bill that must ultimately be paid by the taxpayer.

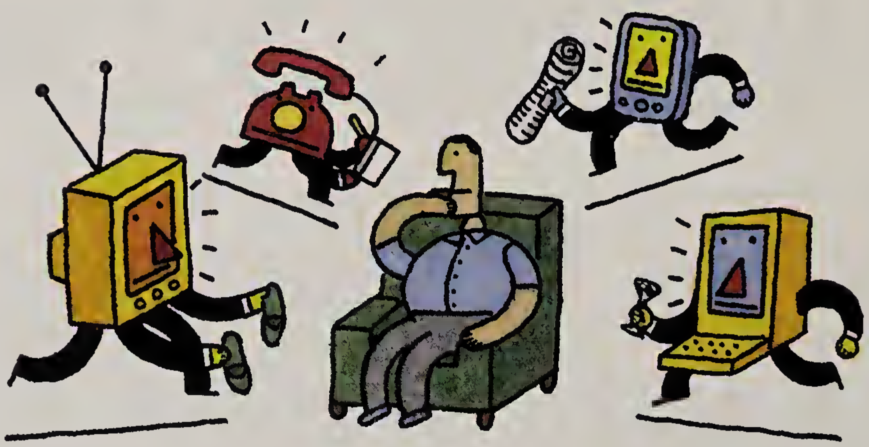
And the system has helped curb the most-common abuse: credit-card fraud. "We programmed the software not to accept any 800 or 900 numbers," says Shapiro.

SOCIAL COMPUTING

THE CUSTOMER IS ALWAYS RIGHT THERE

Social computing isn't about getting dates through an electronic bulletin board or gossiping over company E-mail. Rather, it is a business universe of ubiquitous connections among producers, distributors and customers made possible by an avalanche of new technologies. And companies that don't recognize and prepare for this new paradigm run the risk of being buried in the rubble, warns Forrester Research Inc. of Cambridge, Mass.

Interactive TVs, intelligent telephones and PC mutants such as personal communicators and sales-automation tablets will change the way people do business, according to the consultancy. Traditional notions of buying and selling will go by the board as customers order products and services through electronic media, review and compare richly textured product information, and communicate extensively with other consumers and businesses. Which companies move quickly to exploit these new modes of interaction will determine who rules the marketplace, Forrester predicts.



But the business impact of social computing is not limited to creating new ways of buying and selling. As the communication between companies and consumers improves, organizations will be forced to accord an unprecedented level of importance to customer needs. Marketing organizations will be able to conduct continuous online focus groups, allowing organizations to anticipate and respond to nascent trends. Product development will become a direct response to specific consumer desires, and companies will have to invest more in software and networking solutions in order to provide customers with direct access to support.

If all this sounds a little overwhelming, CIOs should keep in mind that as online services grow in importance, so will IT expertise. For CIOs who are eager to help their companies take full advantage of the new opportunities, Forrester has a few suggestions:

- Get involved early. IS should be part of the strategic planning process.
- Start prototyping. Smart first steps include supplementing existing customer-service applications, E-mail and calendaring systems, and Lotus Notes discussion databases with simple dial-up bulletin-board capabilities.
- Look for transitional technologies. Introducing marketing staff to CD-ROM players will give accounts an early taste of interactive-digital content. Companies can also gain early experience by posting product-information bulletin boards on America Online, Prodigy and the Internet.
- Plan on giving away PC mutants to customers. The cost will be easily recouped, and the services delivered through these devices will cement customer loyalty, provide clear differentiation and increase sales.

CALCULATED RISKS

If you're like many IS executives, computer security is not something you see as having much impact on your company's bottom line. But according to a recent survey released by Ernst & Young, it's time to think again.

More than 25 percent of

CAREER MOVES

Hallmark Cards Inc. has appointed JAMES C. MILLER vice president of information technology for the Kansas City-based company. Miller joins Hallmark after serving as vice president of information technology for James River Corp.

RACHEL GRAHAM was recently appointed director of information systems development at Mervyn's of Hayward, Calif., an operating division of Dayton Hudson Corp. Graham's responsibilities include systems development and maintenance for the company's five distribution centers, 274 stores, merchandising group and corporate headquarters.

Witco Corp. has named MICHAEL J. DOOLING director of its information technology center in Woodcliff Lake, N.J. Dooling, whose most-recent position was group manager at PepsiCo Inc., is responsible for end-user computing, emerging technologies and IS quality assurance.

ILLUSTRATION BY JAMES KACZMAN

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Number of TPC-C Benchmarks* Published to Date.

TPC-C benchmarks emulate a complex OLTP environment characterized by:

- multiple on-line terminal sessions
- significant disk input/output
- moderate system/application execution
- transaction integrity
- simultaneous execution of multiple transactions
- multiple transactions with a range of complexity
- complex database
- contention on data access and update

Hardware vendors that have used INFORMIX-OnLine to publish TPC-C benchmarks include: Hewlett-Packard, IBM, ICL and NCR.

*UNIX TPC-audited benchmarks published by hardware manufacturers as of 11/1/93.

Informix	Oracle	Sybase
12	0	0

Source: Transaction Processing Performance Council (TPC), 1993.

INFORMIX-OnLine. Real-World

When the Transaction Processing Performance Council designed the new TPC-C benchmarks, they had a real-world performance test in mind. Unlike earlier, simpler TPC benchmarks, TPC-C mirrors transaction-intensive business applications that run a company's day-to-day operations—like yours.

Hardware Vendors Choose INFORMIX-OnLine.

This kind of complex, real-world benchmark requires a high-performance relational database. Which is why hardware vendors running TPC-C are using INFORMIX-OnLine. And of all the leading independent relational database servers only INFORMIX-OnLine is being used by hardware vendors to publish TPC-C results. Not Oracle. Not Sybase.

Why INFORMIX-OnLine?

INFORMIX-OnLine is engineered for real-world performance. It's fully scalable—from relatively small size systems to
over 100 gigabytes) UNIX databases
rates standards-based technology to
ommit, data and referential integrity,
support and a host of other features
deploying applications throughout

nost integrated set of application
leading RDBMS vendor and you've
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use in the only independent bench-
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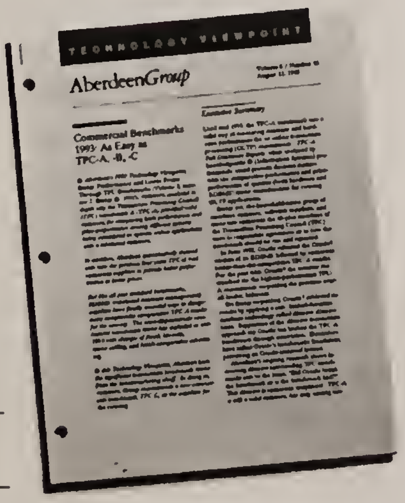

TECHNOLOGY VIEWPOINT

AberdeenGroup

Commercial Benchmarks 1993: As Easy as TPC-A, -B, -C

CIO 12/1

TRENDLINES

the 870 top IS executives surveyed said their companies have suffered financial losses over the past two years because of security breaches in their information systems. A single incident frequently costs the company involved more than $100,000 and sometimes as much as $1 million. And things aren't getting any better: 78 percent of respondents from organizations with more than 1,000 employees said that in the last five years, risks have increased at least as fast as their computing resources have grown. The most-feared threat: a breach by company insiders "who do not need to know" but want to find out anyway.

Knowing this, you'd think security would rank high on IS executives' agendas. But nearly 25 percent of respondents called information security somewhat important or not important at all, while only 34 percent said it is extremely important. Roughly 61 percent said they have no employees dedicated to information security.

Ernst & Young cites the proliferation of computers and networks, the rise of client/server computing and such wide area networking technologies as EDI as contributors to the increasing risk. It points to security-awareness education, policy implementation and good planning as important steps in safeguarding an organization's data. ▬

Neat Stuff for the Holidays

Christmas at CIO came early this year. We received several unsolicited gifts through the mail, any one of which would bring holiday cheer to some deserving soul. So, to make your shopping a little easier, we present our Third Annual Smorgasbord of Seasonal Stocking Stuffers.

For the CEO who has everything, Sign Works, of Quincy, Fla., offers a sign that lights up when your phone is in use. Bearing the message "On The Phone" in bold red letters, it can be mounted on your desk or outside your office door and will work with any phone type except cordless.

ILLUSTRATION BY MARYANNE LLOYD

You'll have to wait until next year to give anyone the "Ortho-Type Patent Pending Sliding Wrist Rest" from Advanced Office Products. Four rubber strips are mounted on a black piece of plastic; also included are two soap-sized blocks of foam rubber with metal backings. A label affixed to the product says, somewhat inscrutably, that it "Relieves wrist, neck, shoulder pain. Type with hand on pad." Since no other information was included, we called the number provided, but all we ever got was endless ringing and—on one occasion—an answering machine with a mysterious message about rentals.

Perhaps the oddest thing we received was a greenhouse-sort of object full of loose dirt and broken leaves. The press release from Home Environmental Products of Willoughby, Ohio, informed us that we were now proud owners of a Plantopia plant—"chosen from the healthiest stock and specially packaged for a safe delivery. Consumers simply take them home, remove them from the packaging and they are ready to grow!"

Unfortunately, nothing short of an act of God would get this particular plant growing again. Presumably the "soil retention device" came loose from the "designer pot" inside the hermetically sealed "bioprism" during shipping. Defoliation resulted.

A subsequent letter from the company confirmed that a number of press folk had received damaged goods and offered to replace them. We thanked the company but declined. This Christmas, we're just sending cards. ▬

The Center Cannot Hold

IS departments are rapidly losing the power of the purse, and their loss is the business units' gain, according to a recent study from Sentry Market Research, of Westborough, Mass. The study of 945 companies planning to support client/server platforms shows a dramatic shift away from centralized IS spending control and toward departmental and business-unit control.

"Seeing processing power and some budgets drift away from IS to end users and lines of business is not a surprise," says Bill Gannon, director of research for Sentry. "But seeing the magnitude and speed of the shift is bound to catch many vendors off guard.

"The separation of power between IS and its users is becoming less clear," says Gannon. "[That] suggests that the vendor community may be ill-prepared to adequately address the needs of emerging managers responsible for evaluating and implementing client/server systems."

The report shows centralized IS losing its influence in database, desktop hardware, applications, service- and technical-staffing decisions, and consolidating control of systems-management responsibilities and purchases. ▬

Are your databases managing you,

These days, the complexity of managing multiple databases has database administrators running in circles. But now you can take a giant step toward bringing all that complexity under control.

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In fact, DataHub can save steps on almost any task. No matter how many databases you have. No matter how many LANs you support. And regardless of whether your environment is centralized, distributed or client/server.

Vendors such as PLATINUM *technology*, Candle, LEGENT, Bridge, InfoTel and PROGRAMART are staying afoot with DataHub's direction, letting you integrate a variety of database management tools. You can also develop your own application-based tools for DataHub's platform of common services.

So take the next step – call ***1 800 860-2047, ext. DH1 in the U.S. or 1 800 465-1234, ext. 665 in Canada****; or fax us at 404 240-7301 (U.S. only); or contact your IBM representative, and see how DataHub can help you set a new pace in managing database systems in your company.*

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Business or Bust

The topic was politics, but the talk at CIO's recent conference kept circling back to one point: If you're not adding business value, you're not doing your job

BY JASON S. CASEY

With the requisite modifications, 1993's reigning cliche, "It's the (fill in the blank), stupid!" could sum up the directive threaded through presentations at the CIO Perspectives conference, held in mid-October in Palm Springs, Calif.: "It's the business, stupid!"

Though the theme of the three-day event was "The Politics of IT," much of the talk boiled down to recognizing the prevailing political flashpoint in most organizations: an IS group that either fails to grasp business imperatives or else fails to act upon them. Managing technology effectively requires CIOs to hack their way out of the technology thickets and into the light of competitive awareness. If only they could successfully internalize the cliche, it's likely that even the most rock-hard political impediment would turn to pudding. And yet, despite occasional inspiring flashes of brilliance, many in IS still struggle to make the connection and convert it to value-adding action. In the face of such falterings, others inevitably seize the initiative.

Consider an example from Motorola. Larry Grow, Motorola's vice president and director of corporate financial planning, told attendees the story of how Motorola applied its now-famous quality precepts to shortening the time it takes to close its books each month. One had to read between the lines of Grow's extremely tactful presentation, but it seems that IS had failed to meet some of the key needs of its customers in Motorola's financial function, and beyond. The 15-day mainframe-based close was slow, costly, cumbersome and rife with errors. Worse, the delay was getting in the way of cycle-time-reduction initiatives across the company and thus was at odds with Motorola's culture of continuous improvement. Important business information was being withheld for too long each month to enrich the decision-making process.

RICHARD SCHULZE *(top inset) revamped the way his stores sell electronic goods to consumers; conference participants break for lunch at the Westin Mission Hills resort, and* **DAVID KEARNS** *(above left) confers with* **JIM WETHERBE** *between sessions.*

After a reengineering-and-downsizing project, Motorola now closes worldwide in two days, with some business units closing in one day (and with its Mexican operations closing in only four hours). This in a company that, according to Grow, has between 25 and 30 different general-ledger systems and no standardized chart of accounts.

Now, says Grow, Motorola enjoys a "15-day knowledge advantage" over some of its competitors. Control of the new PC-based process, which prior to downsizing had resided with IS, now rests within the finance group. The fact that these changes were accomplished through Motorola's reliance on ambitious "unconventional thinking" and on turf-neutral, cross-functional teamwork does not diminish the reality that IS had presented users with an obstacle that ultimately needed to be bulldozed aside.

RICH TENANT *(above) gives conference-goers a look at the humorous side of technology;* **LARAINE RODGERS** *(right) relates her experiences fostering customer service in government.*

PHOTOGRAPHY BY MORNINGSTAR PRODUCTIONS

No, it's not easy achieving the personal "connectivity" needed for total business alignment. Conference moderator Jim Wetherbe, director of the MIS Research Center at the University of Minnesota's Carlson School of Management, alluded to the dangerous difference between doing things right and doing the right things. Wetherbe touted effective communication as a way to identify what those right things are (and to circumvent the tendency of others to "create expectations without your permission"). He recounted the tale of a CEO who was about to can his CIO for gross nonfeasance and had hired Wetherbe "to deliver the bad news." First, though, Wetherbe asked the CEO for a list of the 10 most important things he thought the CIO ought to have accomplished. Had the CEO ever shared these 10 expectations with the CIO? Why, of course not. Wetherbe proceeded to do just that. Whereupon the CIO became an exemplary performer and unexpectedly beat the reaper.

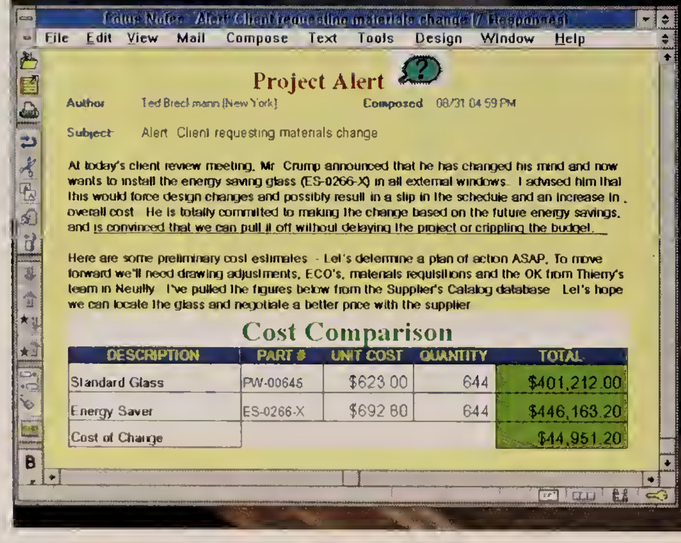
IS had presented users with an obstacle that ultimately needed to be bulldozed aside.

A presentation by Richard Schulze, chairman and CEO of Best Buy Co. Inc., the country's second-largest consumer-electronics retail chain (150 stores doing $3 billion in sales), illustrated the paramount value of a clearly articulated business strategy to which all IT investments can be explicitly linked.

Best Buy has essentially reengineered the retail experience to demystify and return control of the buying process to customers. Focus groups told Best Buy that consumers greatly disliked the traditional method of merchandising electronics, which amounted to confusing and overwhelming them into a state of abject manipulability, so that control of the process shifted to the salesperson. (It was refreshing to hear an old retailing hand confess these past sins.) Schulze reasoned that a retailer that could offer consumer electronics in a shopper-friendly way would win a competitive advantage.

Consequently, Best Buy changed store layouts, adding at the hub of each outlet an "answer center" where shoppers could get information on products that interested them. Gone was the "Great Wall of Televisions." Gone too were the predatory, condescending sales vultures pushing high-profit brands to customers baited into the store by low prices on sale items that have mysteriously disappeared from stock. And gone was the com-

USING NOTES, YOU
YOUR HEAD IN NEW Y
AND STILL LEAVE YOUR H


Lotus Notes - Alert: Client requesting materials change (7 Responses)
File
Edit
View
Mail
Compose
Text
Tools
Design
Window
Help
B

Project Alert

Author Ted Breckmann (New York) **Composed** 08/31 04:59 PM

Subject Alert: Client requesting materials change

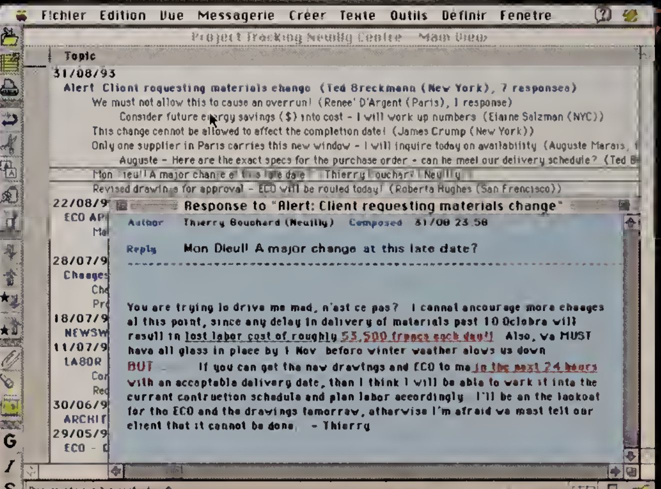
At today's client review meeting, Mr. Crump announced that he has changed his mind and now wants to install the energy saving glass (ES-0266-X) in all external windows. I advised him that this would force design changes and possibly result in a slip in the schedule and an increase in overall cost. He is totally commited to making the change based on the future energy savings, and is convinced that we can pull it off without delaying the project or crippling the budget.

Here are some preliminary cost estimates - Let's determine a plan of action ASAP. To move forward we'll need drawing adjustments, ECO's, materials requisitions and the OK from Thierry's team in Neuilly. I've pulled the figures below from the Supplier's Catalog database. Let's hope we can locate the glass and negotiate a better price with the supplier.

Cost Comparison

DESCRIPTION	PART #	UNIT COST	QUANTITY	TOTAL
Standard Glass	PW-00645	$623.00	644	$401,212.00
Energy Saver	ES-0266-X	$692.80	644	$446,163.20
Cost of Change				$44,951.20

Following a client meeting, Ted, the Account Manager in NY, enters a Project Alert in the Project Tracking Database, describing some last-minute client changes. All key individuals on the project are automatically notified. He includes a spreadsheet comparing prices from the Notes Supplier Catalog database.



31/08/93

Alert: Client requesting materials change (Ted Breckmann (New York), 7 responses)

We must not allow this to cause an overrun! (Renee' D'Argent (Paris), 1 response)

Consider future energy savings ($) into cost - I will work up numbers (Elaine Salzman (NYC))

This change cannot be allowed to affect the completion date! (James Crump (New York))

Only one supplier in Paris carries this new window - I will inquire today on availability (Auguste Marais,

Auguste - Here are the exact specs for the purchase order - can he meet our delivery schedule? (Ted B

Mon Dieu! A major change at this late date (Thierry Bouchard (Neuilly))

Revised drawings for approval - ECO will be routed today! (Roberta Hughes (San Francisco))

Response to "Alert: Client requesting materials change"

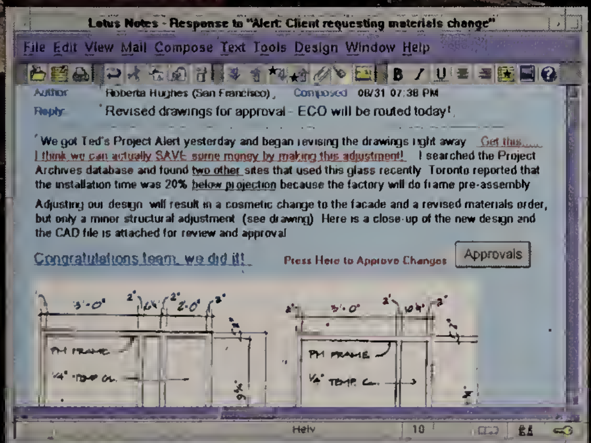
Author Thierry Bouchard (Neuilly) **Composed** 31/08 23:58

Reply Mon Dieu! A major change at this late date?

You are trying to drive me mad, n'est ce pas? I cannot encourage more changes at this point, since any delay in delivery of materials past 10 Octobre will result in lost labor cost of roughly 53,500 francs each day!! Also, we MUST have all glass in place by 1 Nov before winter weather slows us down. BUT If you can get the new drawings and ECO to me in the next 24 hours with an acceptable delivery date, then I think I will be able to work it into the current contruction schedule and plan labor accordingly. I'll be on the lookout for the ECO and the drawings tomorrow, otherwise I'm afraid we must tell our client that it cannot be done. - Thierry

Thierry, the construction site manager in Neuilly, is paged via Notes, and sees the Alert (as well as responses from other team members) from his Powerbook™ at the site. He responds that changes are possible only if the ECO and proper procedures are completed within 24 hours.

CAN WORK WITH
ORK, AN ARM IN PARIS
EART IN SAN FRANCISCO.



Lotus Notes - Response to "Alert: Client requesting materials change"
File Edit View Mail Compose Text Tools Design Window Help
B / U

Author Roberta Hughes (San Francisco), Composed 08/31 07:38 PM

Reply 'Revised drawings for approval - ECO will be routed today!

'We got Ted's Project Alert yesterday and began revising the drawings right away Get this.... I think we can actually SAVE some money by making this adjustment! I searched the Project Archives database and found two other sites that used this glass recently Toronto reported that the installation time was 20% below projection because the factory will do frame pre-assembly

Adjusting our design will result in a cosmetic change to the facade and a revised materials order, but only a minor structural adjustment (see drawing) Here is a close-up of the new design and the CAD file is attached for review and approval

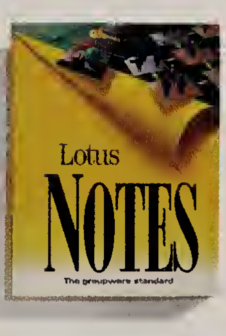
Congratulations team, we did it!

Roberta, the architect in San Francisco, gets to work on the drawings. But first, she checks the Project Archives database and reads about a similar job in Toronto where money was actually saved even though material costs increased. She sends the revised drawings, including the details on the Toronto job, for the team's approval.

LOTUS NOTES MAKES TEAMS WORK.

Every day, more companies around the world are realizing the unique business advantages of Lotus Notes.® Because Notes lets teams access, track, share and organize information in ways never before possible, they can now respond more quickly and effectively to the everyday business demands of customer service, account management, product development, and more.

Let's see how Notes helped one team quickly resolve a problem caused by a last-minute client request. It involves the construction of a building in Neuilly, France, designed by an architect in the San Francisco office of a company headquartered in New York. Without Notes, this kind of responsive problem solving doesn't happen.



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mission-based salesforce-compensation system that fueled the most-objectionable practices. Best Buy's product lines now consist of popular high-volume, low-margin brand-name items, which Schulze says "creates great pressure to bring down the cost of doing business."

If, observed Wetherbe, business goals could more often be expressed as simple-minded campaign slogans ("lowest-cost provider" or "close in two days"), there would be a clearer focal point for IT energies.

One of the potentially disabling Catch-22s that CIOs face these days is the imperative to add more value while also cutting IS costs. Ken Harris, vice president of worldwide IS for the KFC division of Kentucky Fried Chicken, champions "out-of-the-box" thinking as a way of coping with such contradictions. Searching for creative alternatives to fund an otherwise unfundable new retail-management system, Harris has joined with Taco Bell (owned, like KFC, by PepsiCo) and a third-party systems developer to create a system flexible enough that it can eventually be marketed as an off-the-shelf product to outside retailers. Harris emphasized that a Zen focus and an open mind can convert obstacles into positive momentum.

Laraine Rodgers, formerly director of MIS for the City of Phoenix (she joined Xerox last month as vice president and CIO), exemplified the degree to which even government, with zealous prodding, is capable of internalizing the competitive agenda of the 1990s. Phoenix—one of the real-world labs that inspired the Clinton-Gore folks to attempt the once (and perhaps still) unthinkable task of reinventing federal government—is apparently a place where the talk is more often of customer service than of civil service. Rodgers fostered a culture in Phoenix where customer-service goals are so widely shared that there is no longer any need for a customer-service "department." She stayed in touch with her own customer issues by lunching weekly with front-line workers (*sans* supervisors and managers). "You find out a lot about what's going on by talking to the people who are doing it," she says. And while the excluded managers initially opposed Rodgers' lunches, they now are pleased with the results.

> **If business goals could more often be expressed as simple-minded campaign slogans, there would be a clearer focal point for IT energies.**
>
> *–Jim Wetherbe*

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David Kearns, the former CEO of Rodgers' new employer, told the tale of how Xerox responded to the decimation of its market position by Japanese competitors. At a time, Kearns said, when Xerox was habitually "content with 2 percent annual growth," a benchmarking survey revealed that to catch the Japanese would require something more on the order of 17 percent annual growth. This turned out to be the mother of all wake-up calls, leading to Xerox's ultimately successful transformation to a customer-focused continuous-improvement culture.

So arduous was the Xerox recovery, however, that it prompted Kearns to caution would-be change-management dilettantes: "There is no institution I know of that has made the required changes without some sort of outside pressure to do so. The changes are so onerous and so disruptive—to the organization, to the people inside it whom you know and love—that the process can't be tolerated without outside pressure."

Kearns offered anecdotal evidence of the importance of ensuring that all organizational reward structures reinforce the new cultural vision. In the midst of Xerox's makeover, some employees complained to top management that executives were winning promotions despite their disdain for the customer-focused total-quality mission. As a result, Xerox began rating all candidates for promotion on their behavior as TQ role models. "This caused a lot of flak," said Kearns, "but it created more role models—which were then in short supply. It also sent a key credibility message." CIO

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Not content to simply get orders out on time, companies are taking a holistic, customer-focused approach to streamlining the distribution process

RETHINKING THE DISTRIBUTIVE PRINCIPLE

BEING COMPETITIVE IS LIKE WALKING A TIGHTROPE. Organizations are reining in their costs by reducing payrolls, inventories and other operational expenses; meanwhile, increasingly fickle and demanding customers are placing a premium on value-added services. Many companies afraid of falling into the gap between these conflicting demands are looking to improved distribution processes to help keep them on their feet.

Effectively streamlining distribution requires a more-holistic approach than ever before, one that may involve every major functional area. Large-scale reengineering and business-process improvement efforts are often in order because the physical flow of products is only as efficient, timely and accurate as the flow of information within an organization.

As a consequence, distribution has come to encompass more than those functions traditionally associated with transporting finished products from manufacturer to customer. "Firms are defining the entire distribution process much more broadly," explains Stacy L. Graf, a senior consultant with the business-process redesign practice of Arthur D. Little Inc., in Dallas. "Distribution used to be just the warehouse or transportation functions, but areas like forecasting, purchasing, order/entry, manufacturing and invoicing are now considered part of the process."

This integrated distribution model is known as the supply chain, and learning to manage it effectively is a major undertaking. The key is to reengineer every function so that customers, rather than operational goals, are the focus, according to Richard Dawe, a manager with Ernst & Young's management consulting services in San Francisco. For example, an organization

BY MEGAN SANTOSUS

PHOTO BY PETER VIDOR

ED WALTERS: *Outsourcing provided a cost-effective distribution channel.*

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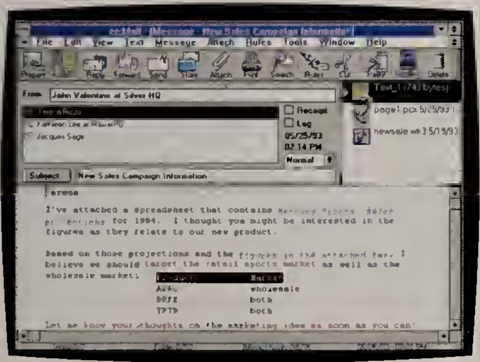

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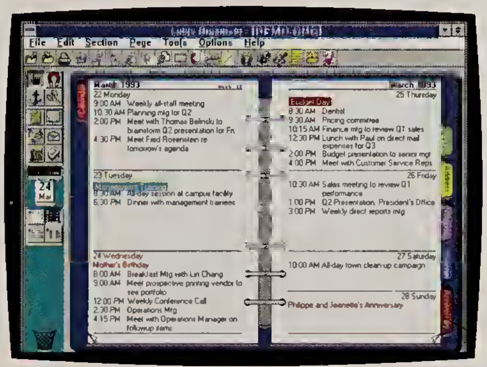

22 Monday
9:00 AM Weekly all-staff meeting
10:30 AM Planning mtg for Q2
2:00 PM Meet with Thomas Belinski to brainstorm Q2 presentation for Fri
4:30 PM Meet Fred Rosenstein re tomorrow's agenda

23 Tuesday
8:30 AM All-day session at campus facility
6:30 PM Dinner with management trainees

24 Wednesday
Mother's Birthday
8:00 AM Breakfast Mtg with Lin Chang
9:00 AM Meet prospective printing vendor to see portfolio
12:00 PM Weekly Conference Call
2:30 PM Operations Mtg
4:15 PM Meet with Operations Manager on followup items

March 1993
25 Thursday
Budget Day
8:30 AM Dentist
9:30 AM Pricing committee
10:15 AM Finance mtg to review Q1 sales
12:30 PM Lunch with Paul on direct mail expenses for Q3
2:00 PM Budget presentation to senior mgt
4:00 PM Meet with Customer Service Reps

26 Friday
10:30 AM Sales meeting to review Q1 performance
1:00 PM Q2 Presentation, President's Office
3:00 PM Weekly direct reports mtg

27 Saturday
10:00 AM All-day town clean-up campaign

28 Sunday
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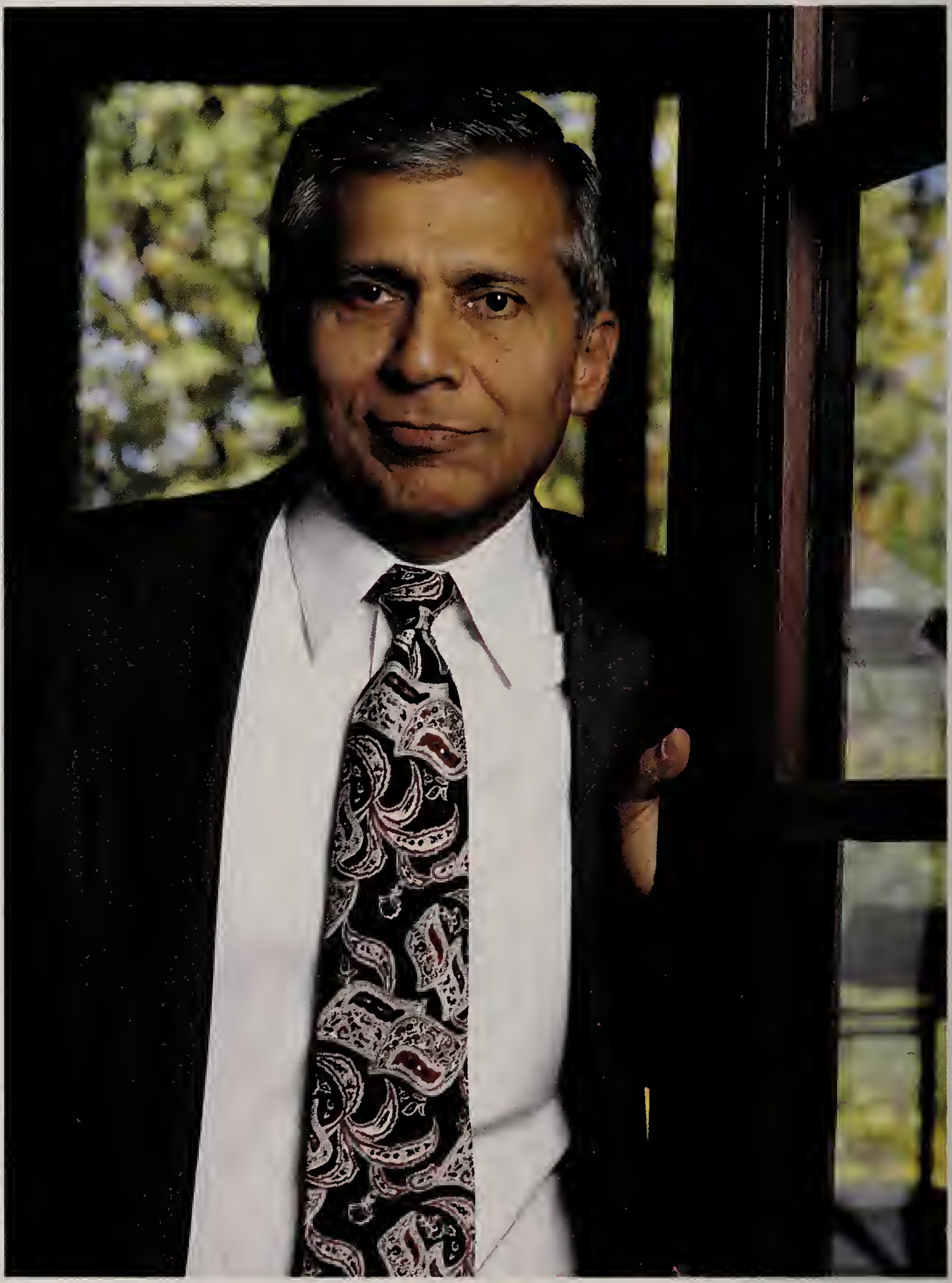
might aim to cut costs by halving inventory levels. Yet such a reduction could end up costing money if customers defect because they can't get products when and where they want them. Attempting to streamline the inventory function without examining what's going on in areas such as forecasting, order/entry and marketing can actually create greater inefficiency. "Companies today are competing on service as much as product," says Dawe. "Creating a value-added supply chain requires cutting out all the problems that exist between functional handoffs."

The first step in redesigning distribution processes is to determine the primary force or forces driving the need for change. The scope and approach of any improvement effort will vary widely depending on whether these forces are internal or external. For example, one company might have serious distribution problems because purchasing doesn't have a clue as to what shipping is doing. Another company might have equally serious problems caused by a customer's need for just-in-time replenishment. Technology such as bar-code scanners, automated inventory-management systems and radio-frequency networks are pretty nifty, but we all know that automating processes is not always the best way to improve them. And of course a company won't gain competitive advantage from technology investments if its competitors are doing the same thing.

> *"**W**e sensed a strong need on the part of our distributors to address the physical side of delivering goods as well as the information side of placing orders and invoicing."*
>
> *–Naz Bhimji*



NAZ BHIMJI: *"Anything that adds costs without adding value has to be thoroughly reexamined."*

PHOTO BY PETER VIDOR

No industry is under more pressure to cut costs and deliver better services than health care. But long before the subject became a national obsession, some medical suppliers began unkinking their supply chains to achieve the kind of efficiency both lawmakers and the public have begun demanding. Now, while others in the industry are scrambling to make themselves more cost-effective, these companies are reaping the benefits of their earlier efforts.

BECTON DICKINSON AND CO., a worldwide manufacturer of medical supplies and diagnostic equipment based in Franklin Lakes, N.J., recognized the strategic importance of integrating its supply chain several years ago. In fact, improving the supply-chain pipeline was deemed so critical that in 1988 the company established a group for this sole purpose. (See related story, Page 40.) "The purpose of creating [the] group was primarily market-driven," says Naz Bhimji, the vice president of corporate-service product systems. "We sensed a strong need on the part of our distributors to address the physical side of delivering goods as well as the information side of placing orders and invoicing."

Establishing EDI-based links with distributors is the easy part of Becton Dickinson's streamlining efforts. Much more difficult is harnessing the technology to fundamentally change business processes so that the company's strategic goal is achieved. "We operate well on a divisional basis," Bhimji explains. "But many of our distributors deal with all of our six divisions, and we want to provide them with one-stop shopping." Achieving this united front requires standardized documents such as invoices and packing slips and a sophisticated logistics infrastructure that supports consolidated shipments.

Complicating matters considerably is the fact that Becton Dickinson is one step removed from the ultimate consumers of its products—namely, hospitals, health clinics and physicians' offices. Each of these entities may have very different replenishment requirements. For example, a large hospital may maintain a small inventory, whereas a clinic relies on a "stockless" supply, in which all products on hand are those currently in use, and no central stock- or storeroom is maintained. Becton Dickinson has to integrate processes across its divisions as well as create partnerships with distributors. "We examine everything we do with our distributors," Bhimji says. "Anything that adds costs without adding value has to be thoroughly reexamined."

EDWARD NEVILLE: *"We've increased our planning cycle from a monthly to a weekly basis."*

PHOTO BY MARK HOBSON

Integration is also key at Pittsburgh-based SmithKline Beecham Consumer Brands (SBCB), which focused on its supply chain in an effort to better manage its product flows. In 1991, the $2.5 billion manufacturer of more than 30 over-the-counter health-care products implemented a decision-support software system from Manugistics Inc. The new system integrates planning processes in demand forecasting, distribution and manufacturing. According to Edward Neville, supervisor of systems and analysis, the initial goals of reducing inventory by one week's supply and cutting transportation costs by $1 million annually were achieved within 14 months. However, Neville says that the real value of the system, which was implemented along with a move to a client/server environment, is best measured by its impact on customer service.

"We've never quantified the time we've saved in distribution," Neville says. "What's important is that we've increased our planning cycle from a monthly to a weekly basis." Integrating information across departments has made planning much more accurate. As a result, there are fewer instances of products not being available for delivery to a customer's distribution facility. "Before, we knew we had a problem when the ship date passed and we didn't have enough stock to fill the orders," Neville says. "Now we can detect a problem five to seven days ahead of a ship date and usually fix it."

Integrating information has enabled SBCB to condense the time between receipt of a customer order and shipment of finished products—in effect, to shrink its entire supply chain. Along the way, business processes have changed, particularly in the area of manufacturing. Products are now delivered on a continuous basis, which means that production schedules are more stable than in the past. According to consultant Graf, the timely flow of information through the supply chain is what makes such changes possible, and it all starts with forecasting. "Just-in-time manufacturing relies on sophisticated forecasting," she says. "One trend is having customers forecast what they need and communicate that back to their suppliers."

> *Integrating information has enabled SBCB to condense the time between receipt of a customer order and shipment of finished products—in effect, to shrink its entire supply chain.*

A FEW YEARS AGO, BECKMAN Instruments Inc., a manufacturer of clinical diagnostic instruments and supplies based in Fullerton, Calif., wanted to improve its forecasting abilities in order to make its distribution process more efficient. The two primary goals were to improve service and reduce the amount of "scrap"—the losses incurred when certain products pass their expiration dates and cannot be sold, according to Steven Kernes, manager of customer-service development and forecasting. In addition to dated products, Beckman also had to con-

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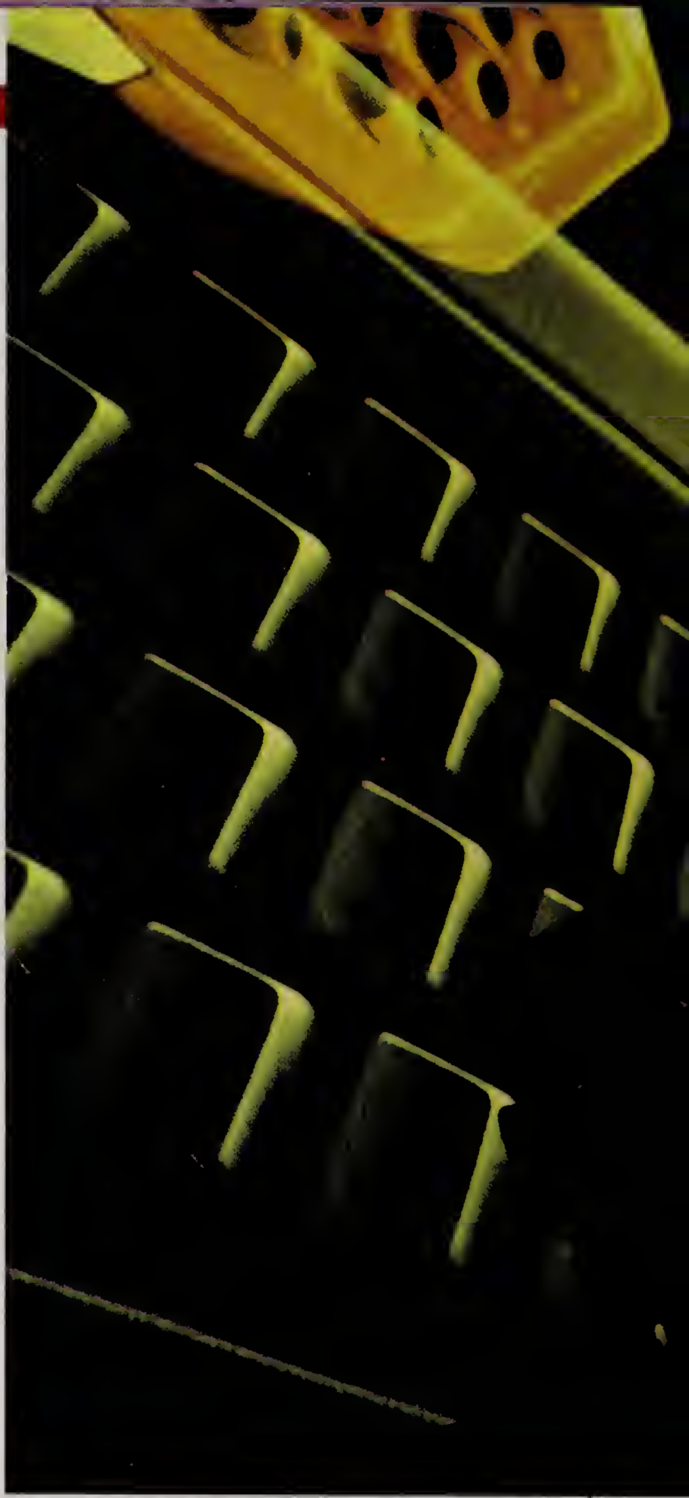


STEVEN KERNES: *"We know what our demands will be through June of 1995."*

tend with the disparate seasonal patterns of its worldwide customers. For example, in Europe, market demands can vary widely from country to country and month to month. In Italy, people tend to go on vacation in August; in Spain, July is the quiet time. So, because orders were based on sales of the previous month, material shipped to Spain in July often just sat around when it could have been used in Italy.

"The ability to produce the right product and send it to where it is needed is critical," says Kernes, "because it's almost impossible to move a product from one place to another after the fact."

By 1989, the different forecasting techniques used around the world had reached their limits. "Some forecasting was generated by our order-entry system, but it was not consistent," Kernes reports. Figures were based on past demand and did not

PHOTO BY STEVEN BURR WILLIAMS

Chain Stroking

At Becton Dickinson, the supply chain was deemed so critical that the company created a separate organization dedicated to improving it

Streamlining the supply chain is serious business at Becton Dickinson and Co. In 1988 the manufacturer of medical supplies and diagnostic equipment based in Franklin Lakes, N.J., established a supply-chain management group in an effort to improve service. "The idea," says Naz Bhimji, the vice president of corporate-service product systems, "is to present one face to our customers." To achieve this objective, the company has integrated the flow of information throughout the entire supply pipeline, standardized processes and documents, and established partnerships with distributors.

Due to the company's efforts, distributors no longer must deal with each of Becton Dickinson's six divisions individually. Instead, they have a single contact point from which to order products, pay bills, negotiate contracts and address problems. "Everything we do is geared toward making the health-care providers that use our products more efficient," says Paul Teloquin, director of advanced-concepts development.

The group offers a series of EDI-based services that are designed to reduce clerical work, provide immediate access to product information and improve accuracy. Electronic applications currently available through the group's trademarked Speed-Com program include order entry, invoicing, contract notification and rebates. A production program is underway using Speed-Com Link I to offer a net billing capability; it is meant to improve distributors' cash flow and eliminate inefficiencies in their administrative overhead.

The group also provides logistics services, such as scheduling and consolidating shipments, aimed at reducing order-cycle times and simplifying receiving. Orders that used to arrive via phone, mail or fax can now be electronically received at headquarters and transmitted to manufacturing plants. Finished products are then shipped to one of four regional warehouses (a fifth warehouse exists for refrigerated products), where they are consolidated into scheduled shipments and sent to distributor sites.

According to Bhimji, the supply-chain group has not yet achieved all its service objectives. "We'd like to be able to guarantee deliveries within a 30-minute window," he says. "We'd also like to be able to track the inventories of our distributors better so that we can improve our replenishment processes."

Still, Becton Dickinson is well on its way to changing the way it does business with its distributors. "Our relationships with distributors have widened to include more than just salespeople and buyers," says Teloquin. "A wide variety of people talk with each other now, and this has led to a lot more creative ideas."

–M. Santosus

take seasonal patterns into account. There was also no coordination among departments, with the result that sales, marketing, finance, inventory and distribution often relied on different forecasting figures. "We didn't have the ability to do a forecast and merge it with a business plan," he says. Beckman needed to develop an enterprisewide system that could both plan forecasts based on future demand and provide various departments with consistent information.

Beckman installed the Manugistics software on its IBM 3270 at headquarters and provided access to end users worldwide. Forecasts are now based on what customers say they will need in the future rather than on how much Beckman produced in the past. "We know what our demands will be for any given part number and location through June of 1995," Kernes says. This is particularly helpful when it comes to planning labor schedules and the acquisition of raw materials because many of Beckman's products have long lead times.

The system also provides the company with a "one-number management capability," says Kernes. "Now finance people use the same information as manufacturing, marketing and inventory people. This is not just an inventory-management or distribution tool. It's used throughout the entire organization, and it provides a way of looking at all our business processes in a completely integrated fashion."

As a result, the list of out-of-stock products, which used to run four pages long, has been eliminated, and the incidence of scrap is down immensely. "We predicted our scrap figure would decline by $79,000 annually, but in 1993, it was reduced by $900,000," Kernes reports. "We're able to accurately predict what our customers need, and this has greatly improved our service."

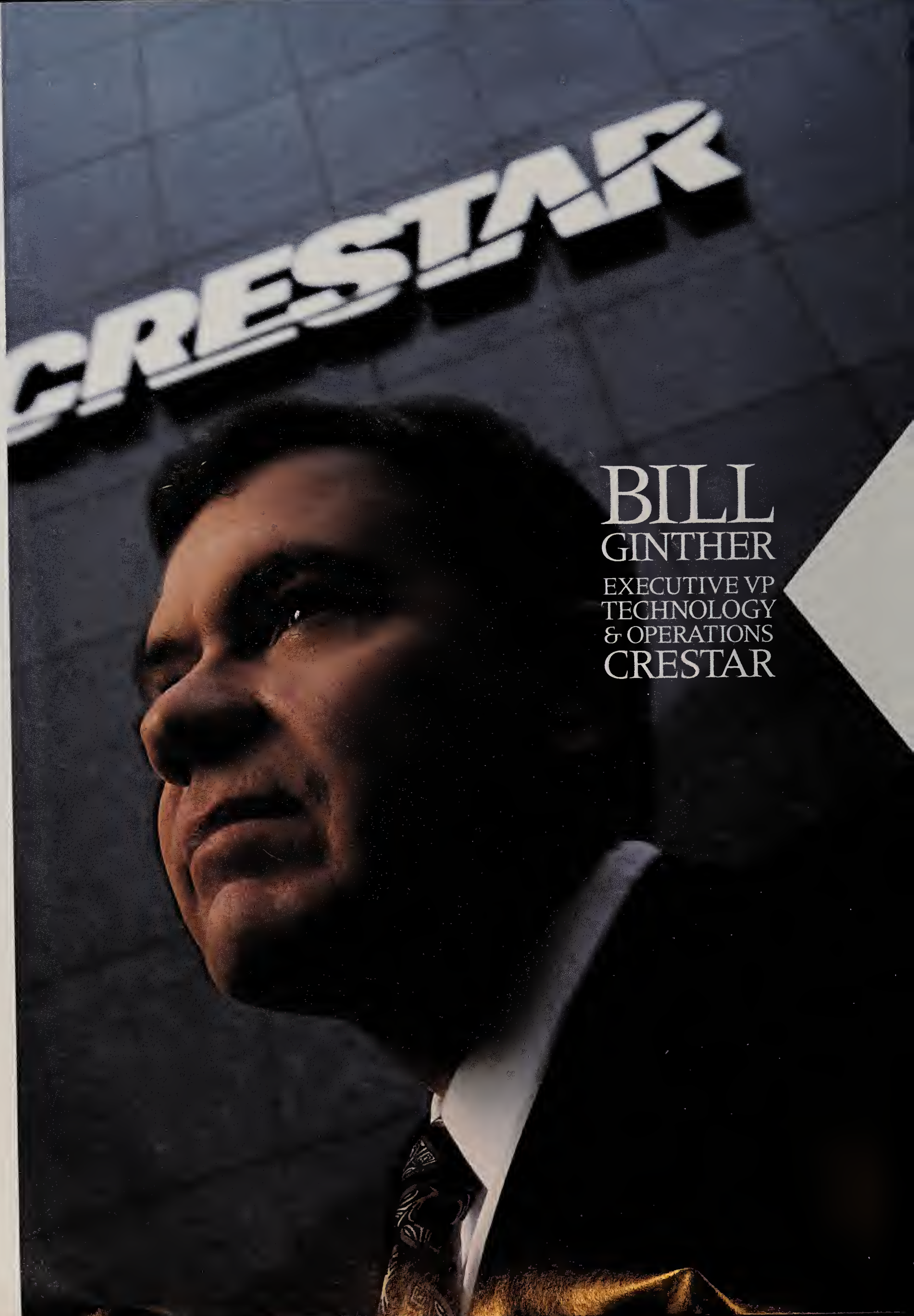
ACCORDING TO ERNST & Young's Dawe, some companies are unwilling or unable to invest the resources necessary to improve their distribution processes. For these companies, turning logistics or warehouse operations over to third-party outsourcers is becoming a viable alternative. At Berlex Laboratories, for example, the introduction of a new product led the Wayne, N.J.-based pharmaceuticals company to go with an outsourcer. "For our prescription drug Betaseron, we decided to bypass traditional distribution methods and turn the order processing over to a third party," explains CIO Ed Walters. The main reason for doing this was cost reduction; the multiple sclerosis drug is currently available in limited quantities and requires refrigeration. (Recipients of the drug are determined by a lottery.)

PCS Health Systems Inc., in Scottsdale, Ariz., has established a nationwide network with participating pharmacies. Orders for Betaseron are transmitted from pharmacies to PCS, where they are processed and then transmitted to the Berlex warehouse. Individual orders are then shipped via overnight delivery directly to pharmacies. Patients have flexible payment options including credit arrangements, and pharmacies have no inventory carrying costs. "In the first few months, it was hectic," Walters admits. "We were sending orders and invoices back and forth with PCS, and it took us awhile to work the procedures out."

> *"The ability to produce the right product and send it to where it is needed is critical, because it's almost impossible to move a product from one place to another after the fact."*
>
> *–Steven Kernes*

Companies might be wary of outsourcing strategic processes to a third party that can also offer services to direct competitors. At Berlex, this concern was resolved by stipulations written into the contract. "Even dealing with patented prescription drugs, it's very important that none of the data is made available to our competitors," says Walters. "Betaseron required a cost-effective distribution channel, and we're satisfied with this arrangement."

Streamlining distribution processes can definitely be a source of competitive advantage, but organizations have to go beyond simply trying to reduce inventories or cut down on costs. Efficient distribution is all about creating new opportunities to provide value-added service.



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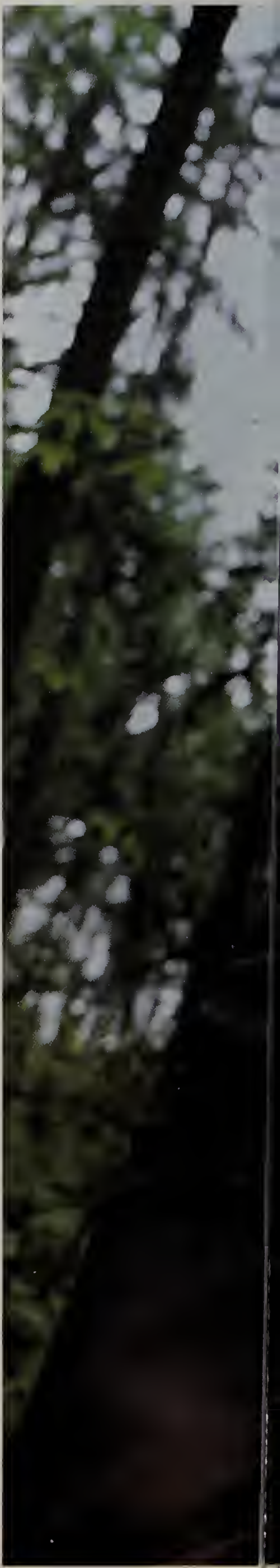
A GRADUAL OPENING

The move to nonproprietary, client/server-based systems is on. But the transformation needn't be precipitous.

BY DAVID H. FREEDMAN



Just two years ago, most CIOs could have convincingly made the case to the rest of the company that moving to an open-systems, client/server environment was risky and of uncertain benefit. Today, most companies aren't asking if the CIO can get them to open systems; they want to know how long it's going to take. "As far as senior management is concerned, the mainframe isn't politically correct anymore," says Steven Wendler, vice president and director of open systems at the Gartner Group Inc., in Stamford, Conn.

The relatively sudden perception that large-system, proprietary environments are losers—a perception that has both fed, and been fed by, the dramatic humbling of IBM Corp. and Digital Equipment Corp.—has left many CIOs feeling they are behind the eight ball, with no clear way out of their predicament. "Users are driving a push away from existing computing infrastructures, but the IS folks are gun-shy about choosing an architecture to replace [what they've got]," says Alok Chaturvedi, a Purdue University business-school professor who specializes in issues relating to open systems. "The chances of making a mistake are quite high, and a lot of companies are getting burned."

While some companies are planning a wholesale leap into open systems, most CIOs are deciding that the best course is one that takes their companies through a gentle transition. "We

DENNIS LOEWE *is taking a "measured" approach in moving Weyerhaeuser Co. to open systems.*

PHOTO BY ALEXANDER MARES-MANTON

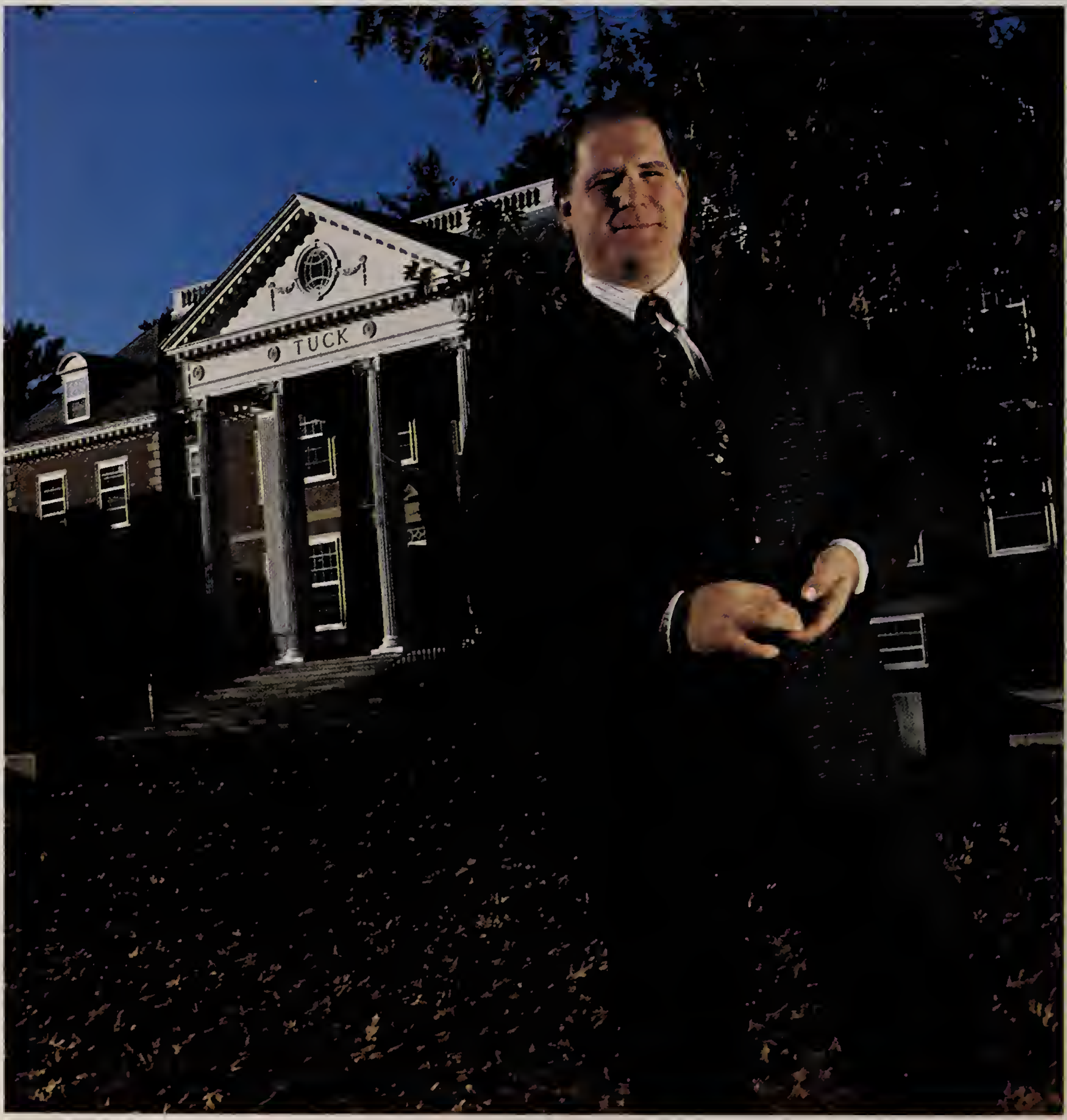
couldn't risk replacing everything all at one time," says Dennis Loewe, financial services controller at $10 billion timber-products-producer Weyerhaeuser Co., in Tacoma, Wash. "We're taking a measured approach."

That's the approach pushed by Hewlett-Packard Co., for one. Among vendors, Hewlett-Packard has become something of a star in the open-systems world. The company claims its revenues from Unix-based products have risen a fairly steady 40 percent per year over the last four years, compared with a 15 percent growth rate for the open-systems industry overall. Rich Sevcik, general manager of HP's systems and server group, estimates that despite the rapid growth, only about 10 percent of installed technology is client/server-based, reflecting CIOs' caution toward making the jump to open systems.

> **"The technology and user needs are changing so quickly that by the time your two- or three-year plan is implemented, everything will have changed."**
>
> *–Philip C. Anderson*

HP doesn't try to talk its customers into leaping into a client/server environment. Instead, it encourages companies to work with HP in developing a few client/server applications with which to get their feet wet. "We help our customers do an inventory of their applications and software environments," says Sevcik. "Then we identify two or three business-critical but not high-risk applications that can serve as pilots for a move to open systems."

The six-month process of moving an application—either by modifying the existing code to run under Unix or by rewriting the application from scratch—serves to familiarize the customer's IT group with the open-systems world and to build confidence in the results. Sevcik notes that his group tends to avoid bringing up the subject of a long-range plan until the pilot projects are up and running. "Once a company has a few successes under its belt, it's ready to put together a two-year transition plan and start moving applications into open systems 10 or 20 at a time," he says.



PHILIP ANDERSON: *"The CIO...has to get everyone focused on the common goal of serving the user."*

PHOTO BY BILL TRUSLOW

BUT ACHIEVING SUCH painless evolution may not be quite as easy as it sounds, warns Philip C. Anderson, associate professor of business administration at Dartmouth College's Amos Tuck School in Hanover, N.H., and a specialist in technology-management strategies. "To sit around in the information systems department and say, 'Here is a detailed plan of how we're going to move to open systems,' is ridiculous," he says. "The technology and user needs are changing so quickly that by the time your two- or three-year plan is implemented, everything will have changed."

Anderson agrees with

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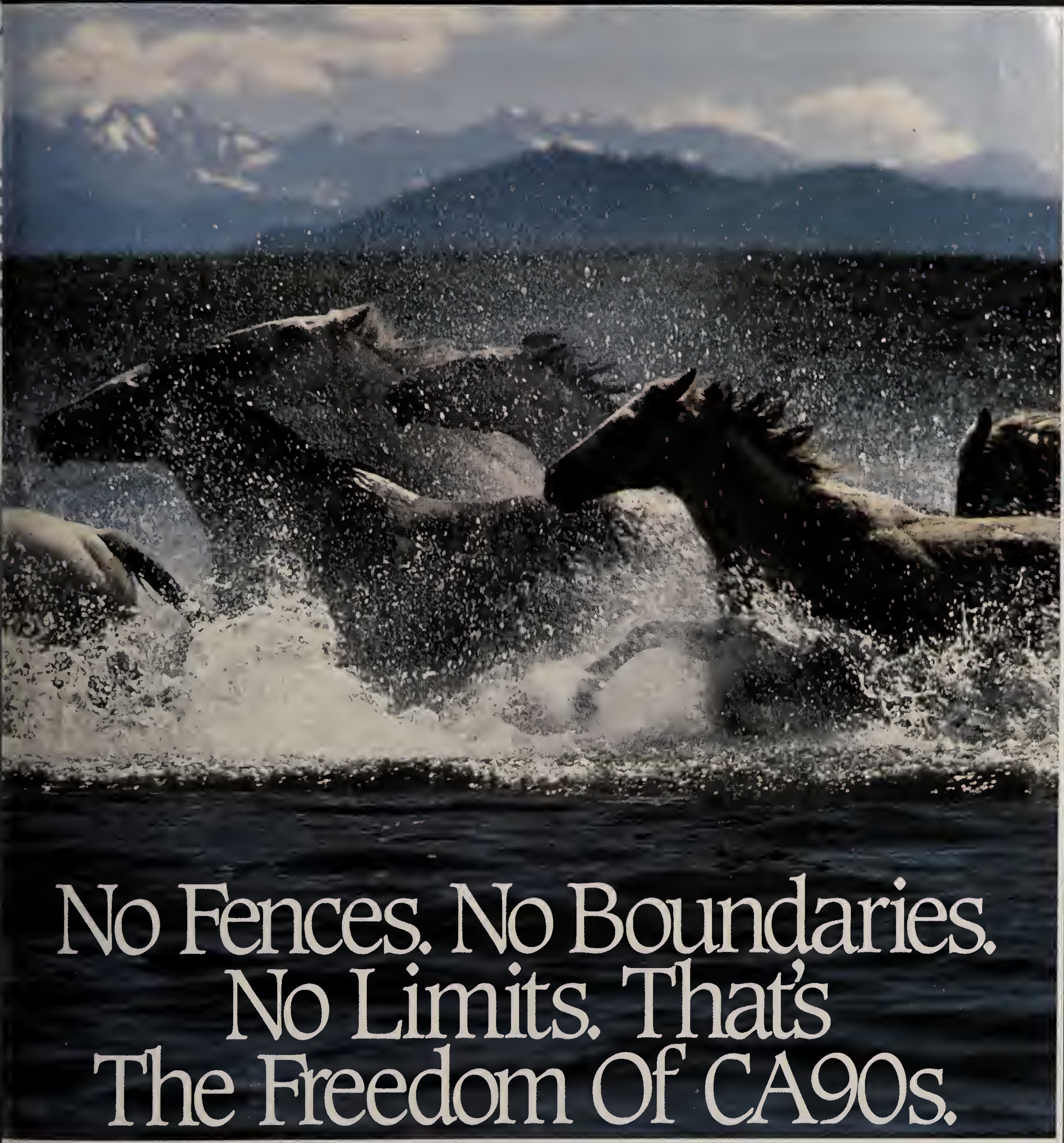

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Sevcik that the transition to open systems should be effected piecemeal. But he insists it is a mistake to think in terms of moving existing applications over to a new architecture simply to avoid being locked into a single vendor. That's what he calls "wooden bridge" thinking—a reference to the builders of the first iron bridges, who uselessly inserted pegs into the bridges' beams simply because that's how wooden bridges were held together. Instead, he argues, IS managers have to let users take the lead—perhaps through rapid prototyping—in coming up with entirely new applications that are intended for an open, client/server environment from day one.

"Open systems isn't about the opportunity to shop around [among] more vendors to do the same things more cheaply," Anderson explains. "It's about getting out to the users, giving them more control over information and capturing their brainpower."

But some applications simply may not be ready for the open-systems world due to the security and online-transaction-processing limitations of Unix and the client/server environment, according to the Gartner Group's Wendler. Decision-support systems and other noncritical applications utilizing a single 500-or-so-user database are generally no problem, he says. But he insists that others are beyond the capabilities of open systems for now—and probably for the next three years. These include applications in which thousands of

Learning to Fish in Open Waters

CIOs seeking help in their systems-conversion efforts should look for a consultant who is willing to teach

Converting to open systems is a tricky game—and one in which a growing number of companies find themselves enmeshed, despite a lack of expertise. Help is available, but the helper should be chosen with care.

Consultants are only too happy to mastermind and implement open-systems conversions. But as the saying goes: Give a man a fish and he will eat for a day; teach a man to fish and he will eat every day. The key to using a consultant is to make sure expertise is transferred to the client in the process, says Philip C. Anderson, associate professor of business administration at Dartmouth College's Amos Tuck School. "The point of the first applications you move shouldn't be to save money but to maximize your learning," says Anderson. "You don't need to spend millions with a consultant to do that."

One open-systems-oriented company that specializes in helping clients help themselves is Open Environment Corp. (OEC), in Cambridge, Mass. OEC trains some 2,000 people a year in a user-oriented, rapid-prototyping approach to moving to an open-systems environment, and it sells software "toolkits" that cost about $8,000 per developer.

"The large companies that come to us want us to empower them," says OEC CEO Sundar Subramaniam. "After we help them build the first application, they can go off and do the rest on their own."

Of course, in the past, companies could always place themselves in IBM's hands when it came to difficult transitions. Now most companies aren't so sure. "There has been an erosion of faith in IBM over the past year unlike any ever seen before," says industry analyst Steven Wendler of Gartner Group Inc., in Stamford, Conn. "And while Hewlett-Packard is seen as a technological leader in open systems, some CIOs still think of them as the calculator people."

HP is working hard to change that image. The company has been continually increasing the number of its service employees while keeping the rest of its employee count flat; service employees now make up two-thirds of the company. "People are still listening to IBM," says Rich Sevcik, general manager of HP's systems and server group, "but now they're getting a second opinion from us."

–D. H. Freedman

ILLUSTRATION BY BETHANY GULLY

users are accessing multiple databases and whose temporary shutdown can cause serious harm to the business. “I tell clients that if you’re just doing decision support, you can forklift your mainframe,” says Wendler. “But medium-to-heavyweight applications like financials and human resources generally aren’t being offloaded, nor should they be, because the technology just isn’t ready for it yet.”

Even Hewlett-Packard’s Sevcik agrees that some of the largest, most-important applications, typically making up about a third of a company’s portfolio, aren’t included in the transition plans worked out by HP and its customers. “These can eventually be moved into a client/server environment,” he says. “But it’s usually done in the context of reengineering business processes, and that can take a long time.”

BRUCE FRITCHMAN: *“It’s been incredibly quiet around here since we started turning off the mainframes.”*

PHOTO BY STEVE WEINREBE

CUSTOMERS DETERMINED to achieve the low cost per MIPS of Unix processors for heavy-duty applications without waiting for reengineering to run its course have another option, Sevcik adds. They can transfer the programs to a large Unix processor that runs not in a client/server environment but as a Unix mainframe. This wouldn’t provide the sort of data-sharing capabilities widely considered the biggest advantage of a switch to open systems, and it would require putting up with Unix’s deficiencies in security and systems management. Still, Sevcik insists that being in the Unix environment not only saves money but better positions a company to make the eventual migration to a full client/server architecture. “It leaves you open-systems-ready,” he says.

That reasoning is behind a new trend among vendors of large software applications to sell Unix versions of their IBM-mainframe-oriented products. Such packages can offer a best-of-both-worlds solution, says Peter Meekin, director of research for applications vendor Dun & Bradstreet Software, which offers a Unix version of its Millennium financial, human-resources and manufacturing software. “Information systems departments have gotten very good at supporting host-based solutions,” he explains. “But if you can take the same application you’ve been running for years and get a version that runs on a Unix platform, you’ll save money and gain networking options.” Meekin concedes that Unix platforms lack many of the facilities of the IBM-mainframe environment but claims the gap is narrowing. “With companies like HP pushing strongly in the area of tools, Unix is catching up,” he says.

Still, many CIOs are feeling pressure to do more than simply run the same old application on a Unix box. They’re being told to dump the mainframe, regardless of its type, and make the jump into a true open-systems, client/server architecture. Large financial applications needn’t be one of the stumbling blocks, says Frank Dodge, co-founder of mainframe-software vendor McCormack & Dodge, which was acquired by Dun & Bradstreet Corp. and ultimately absorbed into D&B Software. Dodge has spent the last few years getting his new company, the Dodge Group, off the ground. The company’s product: financial software, for large organizations, that runs on workstations in a client/server environment.

“Other vendors are saying you should move less-demanding applications to the client/server world one piece at a time and leave financials for last,” says Dodge. “I say start right off with general ledger.”

Dodge doesn’t deny that converting financials to a client/server architecture is a lot of work. But he does say that it's no harder than converting to a new, mainframe-based financial package. "A lot of financial applications are 15 years old and aren't meeting users' needs anymore," he says. "If you're going to go through all the work of moving to a new general-ledger package anyway, why not put it up on a client/server architecture?" In fact, D&B Software also offers a client/server application for its financial software for those customers ready to trade the familiarity of Millennium for the advantages of a true open-systems implementation.

Dodge insists CIOs' fears about moving large, critical applications to a client/server environment are based on false assumptions. Mainframe environments do provide better security tools, he says. But most companies don't implement them fully and properly—allowing too many people to have passwords, for example—so that in the end companies don't get significantly better security than they would in an open-systems environment. And he claims that while transaction-processing volumes can be a problem when a mainframe application is shoehorned onto a single Unix box, the problem goes away when processing is efficiently divided among multiple clients and servers, as Dodge says is the case with his company's software.

SHORT-TERM COST SAVINGS should be the least-important reason for moving a large application, he adds. "You'll end up spending the same amount of money as you would with a new mainframe application. You'll just spend it differently."

Weyerhaeuser has been agonizing for two years over the costs and benefits of moving various applications into an open-systems, client/server architecture. One area that was given the green light is human resources; the company's HR data was scattered across dozens of incompatible databases at some 400 different facilities, forcing the company to gather the tax data it needed by telephoning each site and asking for it. "A client/server approach made a lot of sense here because our various sites wanted independence while the company wanted a centralized database," says Loewe, one of the executives charged with overseeing the move to a new architecture.

> **"Client/server financial software is in its infancy right now, and we don't have the in-house expertise in places like Broken Bow, Okla., to deal with problems."**
>
> *–Dennis Loewe*

But the company is balking at moving its financial software. "Client/server financial software is in its infancy right now, and we don't have the in-house expertise in places like Broken Bow, Okla., to deal with problems," says Loewe. "It would be too risky to trust our finances to that sort of situation." Weyerhaeuser currently uses D&B's Millennium for the IBM mainframe and is considering moving one of its divisions to the Unix version; in a few years, it might consider moving to D&B's client/server version for one or more divisions.

Most users would prefer client/server versions of all the company's applications, says Loewe, and ultimately Weyerhaeuser intends to provide them. But that could take a decade. "We're going to have a continued heavy reliance on centralized mainframe technology throughout the '90s, just because of the knowledge base that exists to support it," he says.

But some organizations don't feel like stretching out the move to open systems. Lehigh University, in Bethlehem, Pa., for example, took just 18 months to dump three of its four mainframes—an IBM 4381, a Digital VAX 8530 and a Control Data Corp. Cyber—for 120 IBM RS/6000 workstations and 10 RS/6000 servers. Bruce Fritchman, assistant vice president for computing and communication services, had calculated that once the architecture was in place, it would save Lehigh a total of $2 million in the first four years. So he talked the treasurer into adding that $2 million in future savings to the IS budget up front to pay for the conversion. "We've gotten an awful lot more computing resources by taking the money we're saving from shutting down the mainframes and putting [it] into our new systems," says Fritchman.

He had originally planned to make the conversion at a more-leisurely pace, but he felt the transition was suffering from a lack of momentum. "We felt we'd never get there unless we did something dramatic," he says. By finding off-the-shelf client/server packages that corresponded to most of the school's mainframe packages ahead of time, Fritchman was able to get to the new environment in one extended action. The school still has one IBM 4381 running financial software, but a conversion will soon be underway to eliminate that holdout as well. The only thing slowing this last step is the cost of converting the financial data to the new software; as far as hardware goes, Fritchman plans to replace the 4381 with a single RS/6000 server. "We thought the conversion would be a nightmare," he recalls. "But it's been incredibly quiet around here since we started turning off the mainframes."

In fact, the Tuck School's Anderson says that as the technological barriers to moving to open systems resolve themselves, the cultural issues surrounding the transition may turn out to be the more-challenging ones. "Whenever you have people dedicated to an old environment coexisting with people championing the new, every organizational-behavior rule in the world says people are going to be at each others' throats," Anderson says. "The CIO may have to knock heads to do it, but he or she has to get everyone focused on the common goal of serving the user."

David H. Freedman is a freelance writer and regular CIO contributor based in Brookline, Mass.

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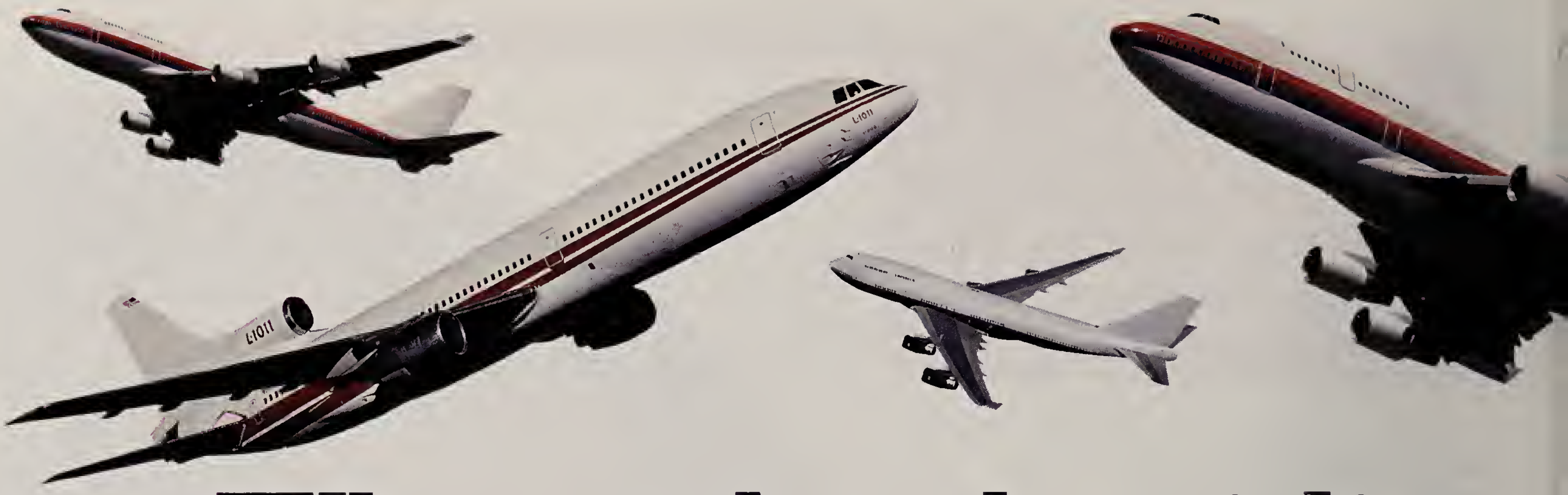

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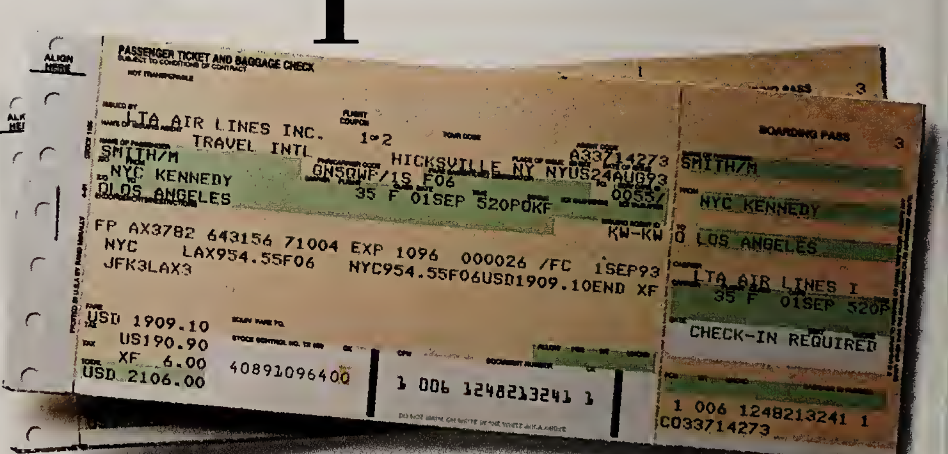

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SHORT TERMS *of* AGREEMENT

The next wave of outsourcing contracts is giving customers greater control over their dearly departed IS resources. Covering shorter periods and bundling together services, these agreements offer customers new flexibility in terms and technology.

BY RICHARD PASTORE

We're in the (*blank*) business, not the mainframe business." This bit of glibness, with the appropriate fill-in-the-blank, has been spouted to justify traditional outsourcing for the past 10 years. But just as Henny Youngman one-liners ("Take my data center, please!") don't pack quite the comic punch they used to, pat outsourcing rationales may fade with the ascendancy of new outsourcing incarnations. Forces such as the exodus to distributed systems, expanding customer clout and increasing competition have threatened the dominance of the traditionally rigid, 10-year mainframe-processing contract.

These forces have given rise to shorter-term, "transitional" contracts that help IS shops manage the migration to new platforms. Further, while mainframe processing was once the only thing on the menu, more vendors are now offering bundled or a la carte services like systems integration and development and selective application and network support. The nature of outsourcing contracts and relationships is changing also—to the customer's advantage—with vendors growing more flexible in their terms and shouldering more of the risk through value-based pricing.

In transitional outsourcing, an IS shop is buying time. Companies converting to new platforms need to free their limited internal staff from legacy-system burdens. The solution is to turn over legacy processing and maintenance to an outsourcer during the transition phase.

"If we outsource our legacy systems, we can take our experienced developers who understand the

DON WICKS *outsourced legacy systems so his staff could focus on the new platform.*

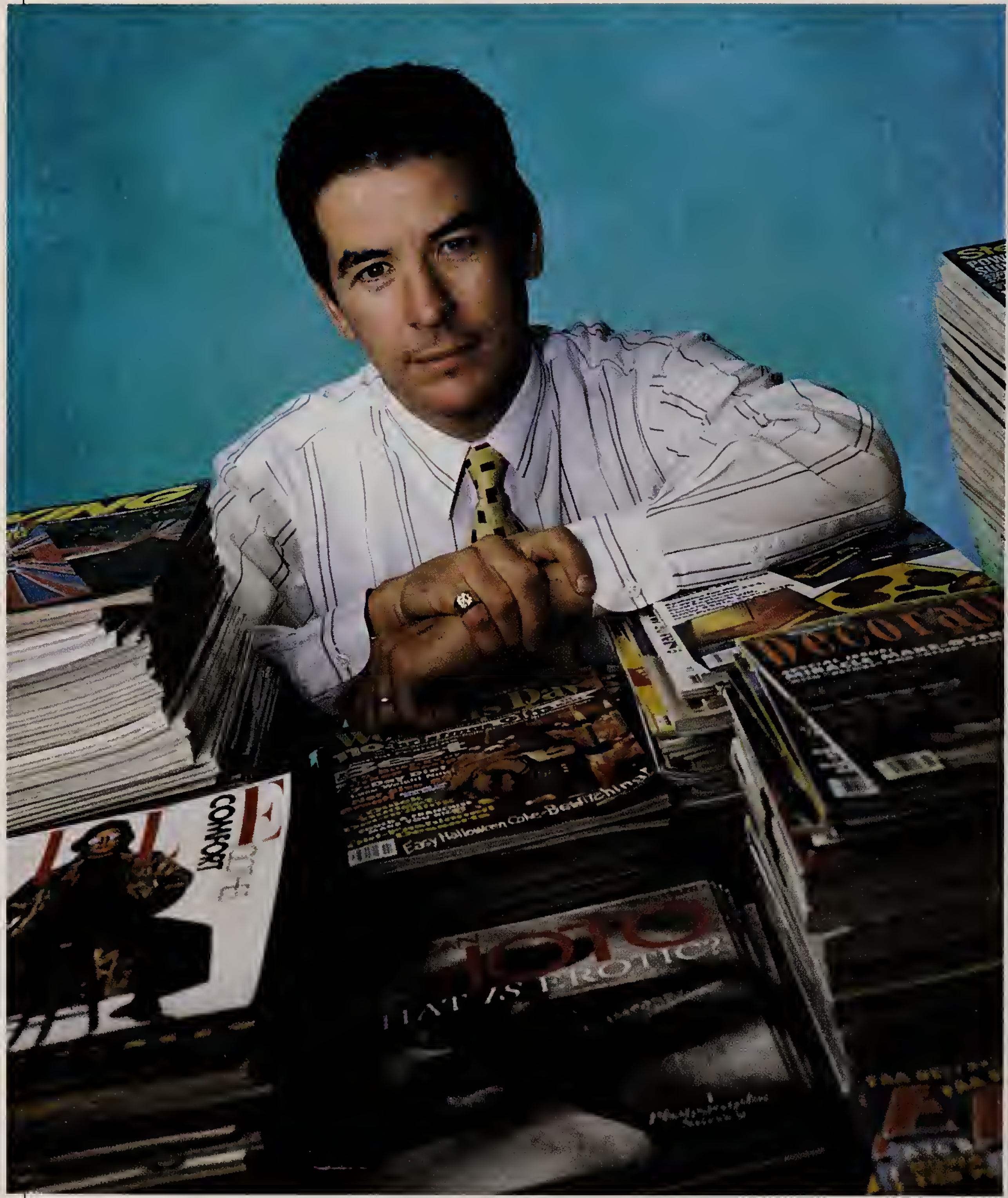
PHOTO BY LANNY NAGLER

business process and focus them on the newer technologies and development methodologies," says Don Wicks, director of IS for the employee-benefits and asset-management systems division at ITT Hartford Life Insurance Companies. This way, Wicks' staff will have acquired the technical skills and experience to maintain the new systems once the transition is completed.

Transitional deals typically run three years, though pricing is often renegotiable yearly or even monthly. As legacy systems are converted or replaced, they are pulled off the outsourced mainframe, and the vendor's fees may be revised downward to reflect the lighter load. Some of the more-innovative contracts establish a baseline utilization fee up front and then periodically measure processing use against that baseline. As usage drops, the client's costs are reduced accordingly. Ideally, such reductions can be used to help finance new platform development.

Software Maintenance Specialists, a Santa Ana, Calif., outsourcer that arranges this type of contract, measures the overall consumption in million instructions per second (MIPS), direct-access storage device (DASD) and tape. "To protect ourselves, we have a minimum contract value to make sure our costs are recouped over a three-year deal," notes President Michael Winder.

Other, less-obvious benefits of transitional outsourcing include protecting morale and stirring up the status quo. Even when an IS shop has the internal resources to handle existing maintenance as well as new-platform migration, it could invite trouble when it relegates part of the staff to dead-end legacy maintenance. "You set up a second-class



ROBERT CUMMINGS *is negotiating with his legacy-system outsourcer for additional services.*

PHOTO BY KENT HANSON

Even an IS shop that can handle existing maintenance as well as new-platform migration could invite trouble when it relegates part of the staff to dead-end legacy maintenance.

group of employees who are stuck in the boiler room doing the dirty work and not acquiring any skills," says Ralph Loftin, principal of management-consulting firm Loftin & Associates in Newton, Mass. "They have to question their future; you'll have a morale problem and high turnover."

"Most programmers prefer to do the new stuff," adds Wicks. "If you outsource the legacy systems, you can redeploy current staff, which typically increases their motivation."

Outsiders taking over existing maintenance are also likely to use their fresh perspective to spot efficiency-improvement opportunities overlooked by internal staffers, says Wicks, who employs outsourcers from Coopers & Lybrand Consulting on-site at ITT Hartford's facility in Simsbury, Conn.

Smaller vendors say transitional outsourcing already constitutes 50 percent of their business, and they expect it to become the predominant form of contract in the near future. "It's been going on for two years, and it's ever-increasing because of the tremendous energy in client/server," says Arthur Kurek, president of Alicomp Inc., a systems integrator and outsourcer in New York. The benefit to vendors is the ability to expand their business beyond commodity mainframe processing, where margins have been steadily eroding, he notes.

Another emerging outsourcing trend is the profusion of add-on services that complement the MIPS-for-hire of the standard contract: systems integration, application-migration assistance, network monitoring, client-site disaster recovery, help desks and new development, for example.

New York-based Hachette Filipacchi Magazine Inc., publisher of *Woman's Day* and 23 other consumer titles, is looking to its legacy-system outsourcer to add a few of these services. Growth in local and wide area networks has proven cumbersome to manage in-house, despite the relief gained by outsourcing the IBM MVS system to CBS Inc. in New York. "We don't have the expertise or head count to manage what has turned out to be another data-center-type operation," says Robert Cummings, vice president of information services. He is negotiating with CBS and its partner Alicomp to help run the new distributed systems, assess new technology, assist in application development and aid in migration efforts from the outsourced mainframe.

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efits of one-stop shopping and built-in familiarity. "It's more convenient, and we probably could get a better deal from CBS/Alicomp for these services because we're already doing business with them," Cummings says. Also, having been Hachette's vendor for five years, CBS knows the publisher's business better than most newcomers could.

Some potential customers will only consider vendors with the broadest spectrum of add-on services. "We wanted to deal with one company [for all our outsourcing needs] rather than having the nightmare of managing three or four different contractors," says Joe Deney, vice president of information systems at McDonnell Douglas Corp. in St. Louis. Last December, the manufacturer outsourced its data center, network and distributed systems to Integrated Systems Solutions Corp. (ISSC), a 3,000-customer subsidiary of IBM in White Plains, N.Y.

> "Today, customers are getting more-flexible contracts that let them change platforms, software and support levels, and take systems in-house or give them back to vendors."
>
> –*Richard Boswell*

The add-on trend is also driven by outsourcing veterans that have successfully handed over the mainframe reins and are now casting about for additional outsourcable candidates. H.J. Heinz Co., the Pittsburgh-based food giant, began with the obvious—the data center, voice network and disaster-recovery program. (See "The Shining Example," *CIO*, Oct. 15, 1991.) Now Heinz is considering farming out network monitoring, desktop computing, help desks and programming staff, according to Senior Executive Consultant Philip Lichtenfels.

The Genix Group of Dearborn, Mich., a traditional outsourcer that handles Heinz's data center, affirms the need to bring additional offerings to the table. "If we don't do it, we see our customers going elsewhere," says Douglas Tayler, director of marketing. Yet Genix can't move fast enough to suit Heinz, its biggest customer. Heinz's subsidiaries had to turn to local vendors for LAN support and monitoring because Genix lacked the capability. The outsourcer is now ramping up to provide that service. Lichtenfels has also encouraged the outsourcer to cultivate mid-range computer disaster-recovery capabilities.

Unlike add-on services, niche or "selective" outsourcing does not depend on an existing, long-term mainframe deal. In these cases, client/server, networking or other selective services may constitute the sole arrangement between an outsourcer and its customer.

"We're seeing many distributed-systems- and network-outsourcing

Little Data Centers That Could

Spin-off outsourcing has a checkered history, but as IS shops strive to become profit centers, it may come back in vogue

What's become of the spin-off outsourcer, that internal data center with a little excess capacity that wanted to grow up into a big-time service provider? There have been some giant successes in the last decade. Look at JCPenney Business Services Inc., at it since 1983 and today boasting a dedicated staff of 240 people. And of course there's AMR Information Services Inc., a vertical-industry outsourcer doing better than the airline it once exclusively supported.

But there are more ambitious plans that never went anywhere, and some significant disappointments (such as Kimberly-Clark Computer Services Inc.) that caused their parent companies to retreat from the market, muttering about refocusing on the core business. What went wrong? Is there a future for spin-off outsourcers?

"There's more glitter than substance there," says Ralph Loftin, principal of consulting firm Loftin & Associates in Newton, Mass. In many cases, internal departments lack the skills to offer services externally. They have little marketing clout or pricing capability, and they bump up against unanticipated costs, Loftin says. "It's a very different game, and very few who try will succeed."

Shoppers for outsourcing look for an infrastructure capable of supporting multiple customers and providing disaster recovery and other sophisticated, essential components, adds Gene Procknow, partner and national director of technology outsourcing services at Deloitte & Touche in Detroit. "Spin-off groups generally don't come with that facility and are unlikely to compete effectively," says Procknow.

But spin-offs have one advantage many generic outsourcers lack: extensive firsthand vertical-market ex-

PHILIP LICHTENFELS: *Heinz is considering farming out network monitoring, desktop computing, help desks and programming staff.*

PHOTO BY JIM SCHAFER

opportunities on a standalone basis," says Ken Hamilton, business development manager for network services at Electronic Data Systems (EDS) Corp.'s technical-products division in Richardson, Texas. Hamilton adds that these selective categories are the fastest-growing markets at EDS. At ISSC, contracts for distributed-systems services are now more popular than new deals exclusively for mainframe processing, according to Chairman and CEO Dennie Welsh.

Outsourcing local and wide area networks is a sensible alternative when "you have networks all over the country and you can't hire people to administer them in all 50 states and out-of-the-way locations," explains Gene Procknow, partner and national director of technology outsourcing services at Deloitte & Touche in Detroit. As for telecommunications, companies that brought it in-house are realizing they don't want to fund and run their own telephone companies, especially since tools to manage telecom have grown more complex.

With these shifts in outsourcing patterns, it follows that contracts and vendor-customer relationships would also undergo significant changes. Happily, it is the customer who's gaining the upper hand.

perience. The JCPenney name alone can pique the interest of potential customers looking to outsource their credit-authorization and transaction-processing systems. "They know we bring retail skills. We already have the infrastructure and a lot of talented people specializing in this market," says Frank Hagan, senior vice president of operations in Dallas.

Despite the hurdles, there may be another spin-off wave on the horizon. As more companies move off the mainframe and computers continue to become smaller and cheaper, IS shops will have the floor space to burn, says George Logemann, director of management strategies at the Boston-based Yankee Group. "They will look at outsourcing as an opportunity to become more of a profit center than a cost center."

–R. Pastore

"Ten years ago, the vendor got everything," recalls Richard Boswell, vice president of sales and marketing at outsourcer Power Computing Co. in Dallas. "Today, because of the increased competition, customers are requiring and getting more-flexible contracts that let them change platforms, software and support levels, and take systems in-house or give them back to vendors." Consequently, vendors' revenue streams are no longer as dependable.

OUTSOURCING'S NEW LOOK

Recent trends in outsourcing are making the arrangement more flexible—and more attractive—for the customer

Transitional outsourcing: Temporary arrangements that free internal resources from legacy maintenance during migration to new platforms

Add-on services: Nontraditional services offered in addition to mainframe processing

Selective outsourcing: Independent contracts for nontraditional services such as client/server operations or network support

Contract evolution: More-flexible, shorter-term deals gain in popularity

Value-based fees: Vendor fees tied to customer business value; vendor shares directly in risks/rewards

Partnerships: Interdependencies and the need for trust transform vendor-customer relationships

Savvy CIOs understand the mercurial nature of technology and now increasingly refuse to commit themselves to contracts for longer than three to five years. They also want contract reviews as frequently as every 30 to 90 days. "Our belief is a yearly contract is the best way to go; we get a chance to see if they are still meeting our objectives," says ITT Hartford's Wicks. Going against the lock-in mentality, Coopers & Lybrand, Wicks's vendor, specifies reviews every 90 days in all its contracts, according to Benny Popek, C&L's national director of information technology outsourcing. Of course, this gives outsourcers more chances to raise their rates.

Despite the trend toward short contracts, at many large vendors, all-inclusive outsourcing arrangements have kept contract durations inflated; the average is nine-plus years at ISSC. But the contracts include stipulations requiring the introduction of new technology as it becomes available, Welsh says.

Though customers are demanding more from their vendors, there is also an element of trust being built into contracts. For instance, some nontraditional services such as help desks and network monitoring cannot be easily predefined in terms of expected fees or savings. Both parties have to trust that the benefits will eventually become clear and quantifiable. "If you can't define the cost of these new services, you'll have to add that language to the contract when you cross that bridge," says Hachette's Cummings. Trust is fundamental, "because if I have to go back to the contract to defend myself on every point, then there's a big problem with this relationship."

Relationship, or partnership, has become a buzzword in the outsourcing business. Every vendor says it wants to be a strategic partner—to understand and help achieve customers' business goals. Cynics would point out that the two parties are fundamentally at odds: the vendor striving for maximum profit and the customer demanding optimum savings. But even the skeptics admit the possibility of true partnership when the vendor's revenues depend directly on the customer's business fortune, or lack of it.

"When you tie the outsourcer's fee to the customer's profit goal, all of a sudden the relationship becomes a partnership," says Herbert Chaplin, former director of IS at Ultramar Inc., a petroleum-refining and -marketing firm in Long Beach, Calif. Ultramar has linked portions of its outsourcing contract to user satisfaction and gains in shareholder value. New applications developed by outsourcer Systemhouse Inc. will be judged project-by-project against pre-established user metrics. Systemhouse's return will vary, predicated on the satisfaction and productivity gains of end users and the resulting contribution to corporate shareholders.

In another example, some ISSC contracts award the outsourcer a share of customers' profits earned from electronic-marketplace links designed and run by ISSC. When ISSC reengineers a process, such as a manufacturing operation, it will earn a percentage of the resulting cost savings. The greater the results, the greater the vendor's reward.

Of course, along with the rewards come the risks. "We're being forced to redefine our business in terms of the value we bring to the customer's business. We're being asked to share in the risk," says Geoff Carroll, president of EDS Northern Europe, based in Brussels. In the United States, EDS designed and runs a system to help the City of Chicago recover parking fines. EDS's fee was set as a percentage of fines recovered through the system. If the system didn't work or little was collected, EDS would have been stuck.

The Chicago arrangement was a success for both parties, and EDS Europe is now duplicating it in Spain and may do so in the Netherlands. "It's new territory for us, but there will be increases in this type of contract," Carroll says. "We have to be open to that."

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The Year in Review

An index of all major articles published in *CIO* in 1993, including a cross-reference by article type

Articles are numbered in sequence from the first issue of CIO. *(See past December issues for guides to stories published prior to January 1993.) To help readers find articles of interest, we've added a cross-reference of categories at the end of the listing. For example, readers interested in global issues would look up the articles numbered 605, 688 and 699.*

JANUARY 1993
Special Issue on ROIT

573. "Where Are We Now?" *(Page 28)—fourth annual Coopers & Lybrand-CIO survey of non-IS executives regarding the place of the CIO in the corporate structure. By David H. Freedman*

574. "The REAL Language of Business" *(Page 36)—CIOs must learn to explain the benefits of IT in hard dollars. By Allan E. Alter*

575. "A Watertight Case" *(Page 40)—regionalization and a new IT plan reduced costs and improved service for The Perrier Group. By Megan Santosus*

576. "The Engine of Change" *(Page 62)—a materials-management system named TALON has put NYC's Transit Authority back on track. By Megan Santosus*

577. "The Road to Recovery" *(Page 68)—the Medical Center of Delaware's materials-management system cuts inventory and labor costs and generates new revenue. By Richard Pastore*

578. "An IS Energy Audit" *(Page 72)—Lone Star Gas Co. has streamlined service and cut costs with a new customer-information system. By Meghan O'Leary*

579. "Bargaining Power" *(Page 76)—a single, worldwide purchasing system saves Texas Instruments millions annually. By Meghan O'Leary*

580. "Swimming in Black Ink" *(Page 82)—when The Travelers Companies went with electronic publishing, contract-production costs dropped. By Richard Pastore*

581. "Grand Designs" *(Page 26)—an Outlook column on the problems facing reengineering in 1993 (CSC/Index survey). By James A. Champy*

582. "Labored Relations" *(Page 86)—a good relationship between IS and end users is critical to systems success. An Insights column by Lisa M. Moose*

583. "Group Dynamics" *(Page 90)—a State of the Art column on the Society for Information Management and other CIO affinity groups. By Megan Santosus*

584. "Merced County's MAGIC Act" *(Page 104)—a Working Smart column on a human-services agency's move to a distributed architecture. By Megan Santosus*

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585. "Reinventing the Heal" *(Page 32)—IT-enabled patient-focused-care teams are dramatically reducing costs at Lee Memorial Hospital. By Meghan O'Leary*

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Cover Story
Pop Goes The Network
Rock's TV flagship abandons the heavy metal
VIACOM
Also inside
Anatomy Of A Reengineering Campaign

586. "Pop Goes the Network" *(Page 42)—Viacom is singing a new song since it downsized from a mainframe to a PC-based LAN. By Thomas Kiely*

587. "The Best of Both Worlds" *(Page 48)—companies treading a middle ground between centralization and decentralization need strong IS support. By Thomas Kiely*

588. "Ethical Gray Matters" *(Page 58)—information executives can't look the other way when questions of ethics come up. By Richard Pastore*

589. "In Safekeeping" *(Page 22)—an Insights column on ways to preserve a company's source code and the ideas it contains. By Richard Harter*

590. "A-Teams in Residence" *(Page 28)—teaming IS with end users at The Dime Savings Bank eliminated some barriers. A First Person column by Jack Wagner*

591. "A Really Big Show" *(Page 64)—a State of the Art column on presentation software: The line between enough and too much is often thin. By Lucie Juneau*

592. "Frontline" *(Page 68)—reengineering and client/server imaged-paper workflow systems were made for each other. By Portia Isaacson*

593. "The FDIC's Borrowed Image" *(Page 76)—a leased imaging system aided an FDIC auction of nonperforming loans. A Working Smart column by Megan Santosus*

MARCH 1993
Special Issue on Software

594. "The Burdened Boss" *(Page 28)—managing software staff is a challenge in the high-pressure environment of changing technologies. By Thomas Kiely*

595. "The Willing Technician" *(Page 36)—software programmers are willing to accept change—if it's accompanied by management support. By Richard Pastore*

596. "The Reluctant Ally" *(Page 50)—the best way to ensure users get a system they can live with is to have them help with the design. By Meghan O'Leary*

597. "Perdue's New Pecking Orders" *(Page 60)—Perdue Farms' tender IS management style makes for a tough IS department. By Megan Santosus*

598. "The Well-Armed Enterprise" *(Page 70)—assembling the right mix of development tools requires painstaking analysis. By Mickey Williamson*

599 "Dare to Think Big!" *(Page 22)—large systems are easier to build and less risky than they used to be. An Insights column by David H. Starr*

600. "A Fair Shake" *(Page 78)—not protecting itself in a software-licensing contract is a company's worst mistake. An Insights column by Leslie Sruger*

601. "Bug Busters" *(Page 82)—automated software-testing beats manual methods for speed and accuracy. A State of the Art column by Lucie Juneau*

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602. "Where Are They Now?"*(Page 28)—strategic systems revisited: CIO takes another look at three companies' strategic information systems. By Megan Santosus*

603. "Paths of Least Resistance" *(Page 36)—companies are realizing that workflow redesign is a worthy end in itself. By Richard Pastore*

604. "Supplier's Demand" *(Page 50)—programmers with client/server skills are in high demand among vendors of distributed applications. By Mickey Williamson*

605. "Head to Head" *(Page 60)—Lester Thurow talks about how America can improve its position in world markets. An interview by Thomas Kiely*

606. "My New Modem Operandi" *(Page 24)—a First Person column updating the activities of a CIO-turned-consultant. By Tripp Strange*

607. "The ABCs of Executive Ed" *(Page 66)—opportunities abound for CIOs to brush up their expertise. A State of the Art column by Kathleen Melymuka*

608. "Frontline" *(Page 72)—visualization tools are the "typewriters" of the era of visualization. By Portia Isaacson*

609. "Fast Access, Fast Relief" *(Page 80)—an object-based retrieval system tracks new-product information at Parke-Davis. A Working Smart column by Megan Santosus*

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Strategic Outlook on IS Quality

610. "Improvement Starts at Home" *(Page 39)—even without top-management backing, quality can still be a departmental mission. By Thomas Kiely*

611. "Getting to Know the Neighborhood" *(Page 48)—benchmarking is a useful, enlightening—and occasionally humbling—experience. By Thomas Kiely*

612. "Laying Out the Welcome Mat" *(Page 52)—IS must not lose sight of overall company goals while working to satisfy its customers. By Meghan O'Leary*

613. "Leading Lights" *(Page 56)—at Carolina Power & Light, IS was the department tapped to lead the company's TQM push. By Meghan O'Leary*

614. "Trial by Fire" *(Page 60)—when boom times caught Janus Capital by surprise, its IS department had to grow up in a hurry. By Richard Pastore*

615. "Micro Management" *(Page 22)—an Insights column on Nolan, Norton's study on improving end-user computing. By John P. Halloran and Brian S. Pappas*

616. "Informed Opinions" *(Page 26)—four CIOs discuss the Deloitte & Touche survey on leading trends in IS. An Outlook column by Kathryn Hayley and Jeff Plewa*

617. "Golden Retrievers" *(Page 66)—document-management tools make electronic records simpler than paper. A State of the Art column by Lucie Juneau*

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Three Mile Island's IS Energy
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Reengineering The Purchasing Process

618. "A New Life for Purchasing" *(Page 32)—reengineered purchasing departments prove that smart shoppers are made, not born. By Meghan O'Leary*

619. "Liberation Technology" *(Page 42)—portable computers and wireless communications put the office where the customer is. By Megan Santosus*

620. "An Information Powerhouse" *(Page 50)—Three Mile Island has cleaned up both its nuclear facility and its information systems. By Leigh Buchanan*

621. "Looking for a Few Good Reads" *(Page 58)—information executives discuss the quantity and quality of the business and trade press. By Tom Vannah*

622. "Special Delivery" *(Page 26)—an Insights column on the uses of critical information systems. By Thomas P. McAuliffe*

623. "A New Lease on Licensing" *(Page 66)—new kinds of software licenses are in the works. A State of the Art column by Kathleen Melymuka*

624. "Computer-Aided Bake Sales" *(Page 76)—Nabisco improved customer service by networking its sales department. A Working Smart column by Megan Santosus*

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Strategic Outlook on Enterprise Networking

625. "Something Old, Something New" *(Page 34)—Second Opinions: four experts offer advice on what to do with one company's outmoded legacy system. By Richard Pastore*

626. "The Forces of Democracy" *(Page 50)—power structures can be shaken when a LAN starts spreading around corporate information. By Thomas Kiely*

627. "An Internal Technology Poll" *(Page 54)—in a distributed environment, knowing the dollar value of technology assets is more important than ever. By Thomas Kiely*

628. "Governing the Multiparty System" *(Page 60)—despite the management headaches, there are many reasons to support IT diversity. By Abbie Lundberg*

629. "A Democratic Reform Movement" *(Page 66)—to prepare for the trials of deregulation, Florida Power is moving to open systems. By Abbie Lundberg*

630. "The Sum of Its Parts" *(Page 74)—new cost-reporting methods are giving senior managers a more-accurate financial picture. By Scott Wallace*

631. "Many and Varied" *(Page 26)—mass customization tailors products to meet individual consumers' needs. An Insights column by B. Joseph Pine II*

632. "Long-Distance LANs" *(Page 82)—a State of the Art column on how organizations can provide LAN access to even remote users. By Lucie Juneau*

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633. "Outsourcing Terms of Agreement" *(Page 30)—a well-thought-out contract can help minimize the risks to both client and vendor. By Mickey Williamson*

634. "The Upshot of Downsizing" *(Page 42)—CIO reports on four companies' experiences with downsized systems. By Meghan O'Leary*

635. "14 Key Pieces of Information" *(Page 48)—organizations are waiting for their lenders to assemble business data into a plan of action. By Thomas Kiely*

636. "Training on Tap" *(Page 56)—just-in-time training gives employees as much coaching as*

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they need, when they need it. By Richard Pastore

637. "The Business of IS" *(Page 26)—in understanding how a business works, the issue for IS isn't whether to be involved but how. An Insights column by Charles C. Francis*

638. "A Standard Response" *(Page 64)—a State of the Art column on the European quality standard ISO 9000. By Sanford E. Dover*

639. "Frontline" *(Page 68)—personal computer software is the most valuable intellectual property being created today. By Portia Isaacson*

640. "Calling All Road Warriors" *(Page 76)—a Working Smart column on advanced telecommunications technology at C.R. England & Sons. By Melanie Menagh*

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Strategic Outlook on Reengineering IS

641. "Deconstructing the Status Quo" *(Page 31)—reengineering may be a dirty job, but some IS organizations have to do it. By Lew McCreary*

642. "Keeping Customers Connected" *(Page 36)—Sprint is using process improvement to ensure that the customer always comes first. By Megan Santosus*

643. "Coming Back from the Brink" *(Page 46)—a new partnership between the IS department and the user community is built at Unisys. By Mickey Williamson*

644. "Getting into the Game" *(Page 56)—J.M. Huber moves its IS department from a glass-house mainframe environment to open systems. By Mickey Williamson*

645. "EDI, Release 2.0" *(Page 62)—the EDI leaders of yesterday are taking advantage of new ways of doing business electronically. By Allan E. Alter*

646. "Six Months of CIO" *(Page 74)—an index of all major articles published in CIO from January through June 1993*

647. "Before Disaster Strikes" *(Page 26)—an Insights column explores various ways to ensure new systems don't become runaway systems. By James A. Willbern*

648. "PC Census Takers" *(Page 68)—asset-management packages help keep track of desktop investments. A State of the Art column by Lucie Juneau*

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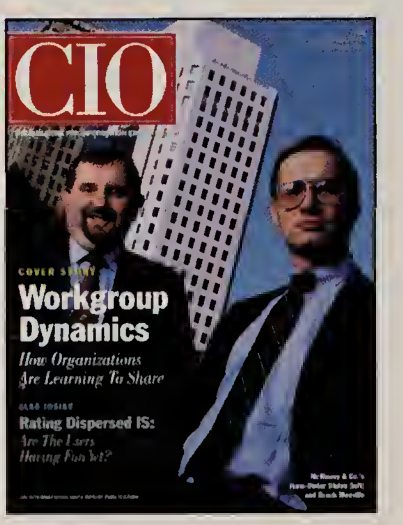
649. "Divide and Conquer" *(Page 28)—massively parallel processing is increasingly an option for commercial companies. By Alice LaPlante*

650. "Learning to Share" *(Page 38)—Price Waterhouse and McKinsey implement the same tool—Lotus Notes—and get different results. By Thomas Kiely*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651. "A Virtual Visionary" *(Page 46)—Bill Davidow says IT will provide the infrastructure for future corporations. An interview by Richard Pastore*

652. "Rating the New World Order" *(Page 50)—are users happy now that they've got the decentralized IS they wanted? By Meghan O'Leary and Lew McCreary*

653. "Information Preservation" *(Page 24)—a data warehouse is an integrated data source for informed decision-making. An Insights column by James W. Ashbrook*

654. "Not All Talk" *(Page 56)—a State of the Art column discusses the increase in computer-telephone integration. By Lucie Juneau*

655. "Frontline" *(Page 60)—who will lead the next wave of IT development? By Portia Isaacson*

656. "Insurance's Loan Ranger" *(Page 72)—AI Credit Corp. moves successfully to client/server. A Working Smart column By Meghan O'Leary and Carol Zarrow*

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657. "How To Be A Great Client/Server" *(Page 30)—what it takes to be an expert in customer service. By Thomas Kiely*

658. "A Model Worth Copying" *(Page 38)—Xerox reorganizes itself in order to serve its customers better. By David H. Freedman*

659. "Golden Handcuffs" *(Page 48)—business-products companies compete in customer service as well as in price and quality; Microsoft profile. By Mickey Williamson*

660. "Taking Care of Business People" *(Page 62)—winners of the business-services category provide the most-appropriate customer service; ServiceMaster profile. By Allan E. Alter*

661. "A Virtual Shopping Spree" *(Page 70)—CIO sends the reader on a shopping spree of the consumer-products winners; Lands' End profile. By Richard Pastore*

662. "Supporting the Servers" *(Page 78)—consumer-services providers prove that the key to customer service is serving internal users first; Taco Bell profile. By Melanie Menagh*

663. "The Taxpayer is Always Right" *(Page 84)—government agencies turn to IT in their quest for improving customer service; State of California profile. By Megan Santosus*

664. "Behind The Scenes" *(Page 90)—the methodology of the CIO-100 is explained and the judges are identified*

665. "Object's Bumpy Road" *(Page 20)—before implementing object-oriented programming, IS must resolve some difficult issues. An Insights column by Jerrold M. Grochow*

666. "The Great Enabler" *(Page 94)—to provide first-rate customer service, you must first have the right culture, people and processes. A State of the Art column by Glenn Rifkin*

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667. "The Creative Process" *(Page 38)—CIO attends a two-day creative session between du Pont and Guilford of Maine. By Thomas Kiely*

668. "A Controlling Interest" *(Page 48)—Associated Grocers seeks advice on taking the client/server plunge. Second Opinions by Richard Pastore*

669. "GE's New Leading Light" *(Page 60)—Hellene Runtagh, GE's first CIO, says superior information management is the key to the company's success. An interview by Thomas Kiely*

670. "Building Bridges" *(Page 70)—Syracuse University trains students for "bridge" positions—those that require technical and in-*

WHAT OTHERS PROMISE TOMORROW,

Intel, Unisys Said to Plan to Develop Commercial Uses of Parallel Processing

Intel Corp. and Unisys Corp. are teaming up in the race to develop a form of high-performance computing power known as parallel processing for the commercial market, industry officials said.

Intel and Unisys declined to comment.

Their development agreement, which is scheduled to be announced today in Santa Clara, Calif., is an attempt by Intel to move the building block currently

to bear fruit until 1995. And it will face stiff competition from others who have already entered the market or are planning to soon. Among larger companies, that includes **International Business Machines** Corp., which is planning to Intro parallel entry by year end.

One parallel-compu always focused on th is Teradata, no **Telephone &** has done

Parallel box draws near

IBM is essentially on schedule with its Enterprise System/9000 parallel processor announcement set for later this year, a company executive said last week. But the unveiling will likely take place in October—or even later.

The machine, intended to handle complex database queries and off-load that from the regular mainframe, will be many as 50 processors in]. It will con-

THE PARALLEL UNIVERSE GROWS

Unisys, Intel, and IBM are moving into "alternative mainframes"

If two heads are better than one, why not a dozen? Or 50, or 100? That's the latest thinking in the commercial data processing market. For 40 years, mainframers such as IBM and Unisys have struggled to build the fastest single computer possible. But now they're bumping into fundamental physical limits, making each new speedup terribly expensive. So, the commercial mainframe industry, like supercomputer ers before it, is turning to par cessing, ganging togethe cheap microproces computing

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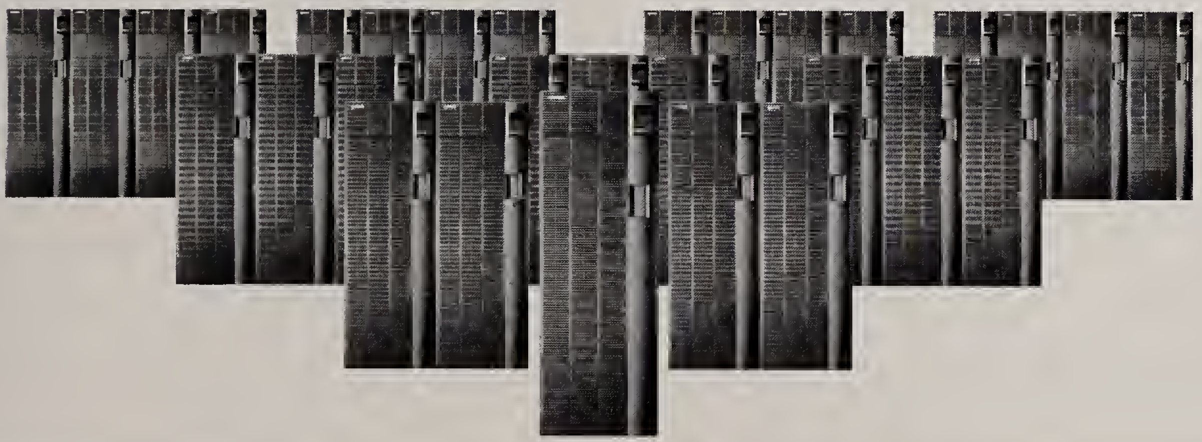

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terpersonal skills. By Megan Santosus

671. "A Consultative Approach" *(Page 28)—to compete successfully with outsourcers and systems integrators, internal IS must master the art of influence. An Insights column by L. Paul Ouellette*

672. "AI-dentity Crisis" *(Page 34)—AAAI conference offers a separate program devoted to business applications embodying AI. A Notebook column by Lew McCreary*

673. "A Client/Server Interface" *(Page 78)—Object-based GUIs provide the perfect means for fully exploiting client/server. A State of the Art column by John Edwards*

674. "Frontline" *(Page 82)—the virtually limitless world of PC Cards. By Portia Isaacson*

675. "Drilling for Data" *(Page 88)—Sonat Offshore Drilling's biggest chore is keeping the world's largest oil platforms up and running. A Working Smart column by Megan Santosus*

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Strategic Outlook on Business Planning

676. "Getting On the Same Page" *(Page 42)—understanding IS's relationship to the company helps CIOs suggest ways technology will further the goals of the enterprise. By Mickey Williamson*

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STRATEGIC OUTLOOK ON BUSINESS PLANNING
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677. "Models in the Making" *(Page 48)—the Minneapolis Star Tribune, Fluor Daniel, The Dannon Co. and Charles Schwab feature strategically united business and technology departments. By Mickey Williamson*

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Wise Choices

Effective project management is not impossible—all you need is the right manager, the right software and the right attitude

BY TRACY MAYOR

On time and under budget. For nearly every planner, manager and IS professional, those phrases constitute the siren song of project management. Wouldn't it be great if you could simply spend a little money up front—hire a professional or buy a piece of software, say—and guarantee success for every project you oversee?

Unfortunately, quick fixes are even more rare in project management than in most other disciplines. Project-management practitioners say that a single person or piece of software can do little to right a project gone seriously wrong or transform a corporation plagued by years of bad habits and inertia. "You need to commit to a major behavioral change to bring project management into a company," says Robert K. Wysocki, a principal with Enterprise Information Insights Inc. in Worcester, Mass., and an adjunct faculty member at Boston University's Center for Management Development. "Sending a few managers to take a three-day training course won't make it part of your life."

ILLUSTRATION BY DAVID TILLINGHAST

That doesn't mean you should simply accept missed deadlines, costly mid-course corrections, low employee morale and aborted projects. Projects can be managed well, provided you're willing to do some work up front.

A good software tool—carefully culled from a field of hundreds to best match your computing environment, project methodology and business goals—can take an enormous burden off the managers involved. But the best software package in the world won't help if the project manager isn't up to the job. "Software tools multiply the ability of the project manager," says Gerald M. Weinberg, a longtime management consultant and author of *The Psychology of Computer Programming* and *Quality Software Management*. "But if you multiply something by zero, what you get is zero. And with negative talent, tools can actually make the situation worse."

The solution is to first choose a top-notch program manager, then a software package that fits the company's needs and goals. Finally, make it your responsibility to foster a companywide work ethos that fully supports both manager and methodology.

Perhaps the most-common mistake CIOs make is appointing a successful programmer as project manager. "There is little connection between a good project manager and a good coder," says Dennis O'Brien, project manager at Universal Oil Products (UOP) in Des Plaines, Ill. "A project manager must keep the forest in view and not be concerned about the bark on the trees." That's not to say that an engineer can't become a good project manager, just that success in one area does not guarantee success in the other.

Someone who is highly motivated by technology rather than management concerns will likely not be a successful project manager, agrees David Crane, a principal at D.V. Crane & Associates in Southboro, Mass., and a teaching colleague of Wysocki's at the Center for Management Development. Instead, Crane emphasizes such soft skills as the ability to listen and an understanding of the use of quantification. "The project manager should be oriented toward goals and delivery," he says.

Because the project manager's role in a company's overall management structure is often blurry, negotiation skills are paramount. The ideal project manager should be willing to take charge, be decisive and "crack the whip" when necessary but still maintain good rapport. A project manager who creates a sense of psychological "ownership" of the project among both clients and team members will prevent finger-pointing when troubles arise.

If you're forced to choose, pick an experienced manager with proven people skills over a prized programmer, advises project-management guru Weinberg. "But be sure to honor the technical expertise. The CIO can do something about this by giving both kinds of professionals good career paths."

There are hundreds of programs on the market claiming some measure of project-management capability—and almost as many caveats from industry insiders, who caution that over- or underreliance on such tools is a common failing.

Managers who aren't careful to put data into context are most likely to become overreliant on a software tool. For example, nearly every software package allows you to track the number of hours employees have dedicated to a project, but in many cases that measure is meaningless or misleading. "Tools can encourage you to measure how many hours people put into something or how many lines of code have been written," says Weinberg. "But that's merely what [the project] has cost you so far"; it tells you little about the project's true status.

The flip side of the coin is underreliance. "Project-management software is unlike a lot of popular software [in that] it's not intuitively obvious what you do with it," explains Crane. "There's a methodology that people need to understand before they can use it." Crane and other consultants say many clients use their software for little more than generating charts. Training is the solution in such cases.

"Know the limitations of your tools up front and make sure you can live with them. Then spend lots of time sanity checking."

–Tom Barrett

To combat dependency problems, Tom Barrett, a program manager at Ziff Desktop Information in Cambridge, Mass., advises users at the outset to input all the information that will produce meaningful results. It's up to the manager to define and assign variables to resources, time and tasks. Although software packages have improved their setup and tutorial options, he says, "people still skip things." Managers who don't fully understand the software may wind up relying on the tool to drive their development efforts rather than the other way around. "Know the limitations of your tools up front and make sure you can live with them," Barrett says. "Then spend lots of time sanity checking."

When it comes time to decide among packages, choose a tool based on a methodology that's consistent with your business goals. Unlike accounting software, for example, no standards exist for project-management software, so five different packages may present five different ways of working. Most packages offer features that adhere to critical path, Gantt, program evaluation and review technique (PERT) or work breakdown structure (WBS) approaches, but they vary widely in their depth of capabilities.

Your software tool should obviously match both your work and computing environments. Consider also the number of projects you want to track simultaneously; your need for resource leveling, refined scheduling, customized fields and other higher-end features; how easy the program is to use on a day-to-day basis; and the amount of training and help you want built into the system.

Particularly in the PC market, project-management software has become much more powerful and easy to use in the past couple of years, but that trend is by no means universal. Often, a program with higher-end features may harbor less user-friendly areas.

Among PC-based project managers, which typically range from $500 to $900, Microsoft Corp.'s Microsoft Project for Windows is popular. Ziff Desktop's Barrett is one of many managers to recommend the $695 program; he likes its ease of use and ability to measure progress against a particular milestone and to package data into larger, summary tasks for reporting purposes. Other noteworthy PC programs include CA-SuperProject for Windows from Computer Associates International Inc., Time Line for Windows from Symantec Corp., Project Workbench from Applied Business Technology and Project Scheduler 5 from Scitor Corp. In the Macintosh market, Claris Corp.'s MacProject Pro joins Microsoft Project as a program with significant market share.

In the $1,200-to-$4,000 range, Crane recommends Open Plan from Welcom Software Technology, Primavera Project Planner from Primavera Systems Inc. and Artemis Prestige from Lucas Management Systems.

Although PC-based programs have improved, some users prefer Unix workstation packages. After testing several PC-based project managers, UOP's O'Brien was surprised to find that Unix-based Digital Tools Inc.'s AutoPLAN II was the easiest to use. "I have 12 users working with AutoPLAN II without a manual and have had no problems," he says.

Even the most-capable manager working with the best software available cannot guarantee a project's success without the CIO's support. The project manager needs that support in order to gain access to upper managers and the authority to carry out his or her responsibilities. In addition, the CIO must send a message up and down the line that the company is firmly committed to project management.

A project has a much-greater chance of succeeding if managers can demonstrate its importance to the strategic goals of the business. Experts cite a lack of focus from top management as the main reason projects fail to catch fire. Weinberg describes working for three months with a 15-person, two-manager team that was forced to switch meeting rooms from one week to the next because they had no space of their own. Yet the CIO assigned a value of $10 million to $12 million a year to the project. Although the CIO had a clear idea of the project's value, he had failed to communicate his vision to facilities personnel.

Avoiding "scope creep" is another challenge. CIOs should make sure all interested parties agree in advance on what the project is expected to produce, then stick to that plan or renegotiate resource allocation and deadlines as necessary. Avoid the "big bang" approach by building in achievable milestones along the way, then test the product at those points to make sure it delivers. Some practitioners recommend intervals of no longer than five days between checkpoints; others argue that such a short time frame invites "micromanaging." Weinberg's rule of thumb: Check often enough so that you can back out of a given task if necessary.

Finally, CIOs must be willing to back out of a project altogether. According to Weinberg, the most-important thing a CIO can do to improve project management companywide is to create an atmosphere where bad news can be freely communicated. "It takes an extraordinary CIO to foster an atmosphere where the project manager can blow the whistle and live to tell about it," Weinberg says. "But you must be willing to drive fear from the workplace. Otherwise, you won't have the realism you need to run projects successfully."

Tracy Mayor is a freelance writer and editor in Salem, Mass.

When Disaster Strikes

What do you do when you discover, late in the game, that a critical project is seriously off-track? Project-management experts suggest you try some—or all—of the following crisis-management tactics.

- **Don't panic.** Calmly assess where you are in the project and determine where you need to be.
- **Resist the urge to introduce a new or different project-management package.** "It won't do you any good at this point, so don't try it," says one analyst.
- **Change the timing of the project.** Buying more time is one relatively simple way to complete a project without significantly disrupting other projects or borrowing resources.
- **Change the scope of the project.** Huddle with the client and determine if any part of the project can be delivered later. A software rollout, for example, is often able to proceed on schedule without "niceties," which can follow in a later release.
- **Try using a PERT network diagram to discover any hidden bottlenecks.** Most project-management software supports this feature.
- **Reallocate your resources.** Throwing bodies at a project can often reduce productivity and increase confusion; but in selective cases, that can be an effective short-term solution to bring a project back on track.
- **Determine which tasks—if any—can be done simultaneously.** Often a project that was laid out linearly can be "telescoped" so that activities or tasks run concurrently. Individual tasks may take longer than planned and costs may rise, but working on several phases simultaneously will allow you to meet your original deadline.
- **Consider calling in a project-management consultant.** Caveats abound—be particularly wary of consultants trying to sell one particular methodology or brand of software. But sometimes a consultant's objective opinion can send a clear message that both employees and upper management will heed.
- **Be brave.** Often a troubled project wasn't sufficiently aligned with a company's bottom-line business strategy in the first place. It takes a strong manager to cancel a project in midstream, but the long-term monetary and time savings can be significant.
- **Learn from your mistakes.** Determine which parts of a canceled project can be successfully and strategically "rebirthed"; set in place a project-management methodology that ensures the next project won't derail.

–T. Mayor

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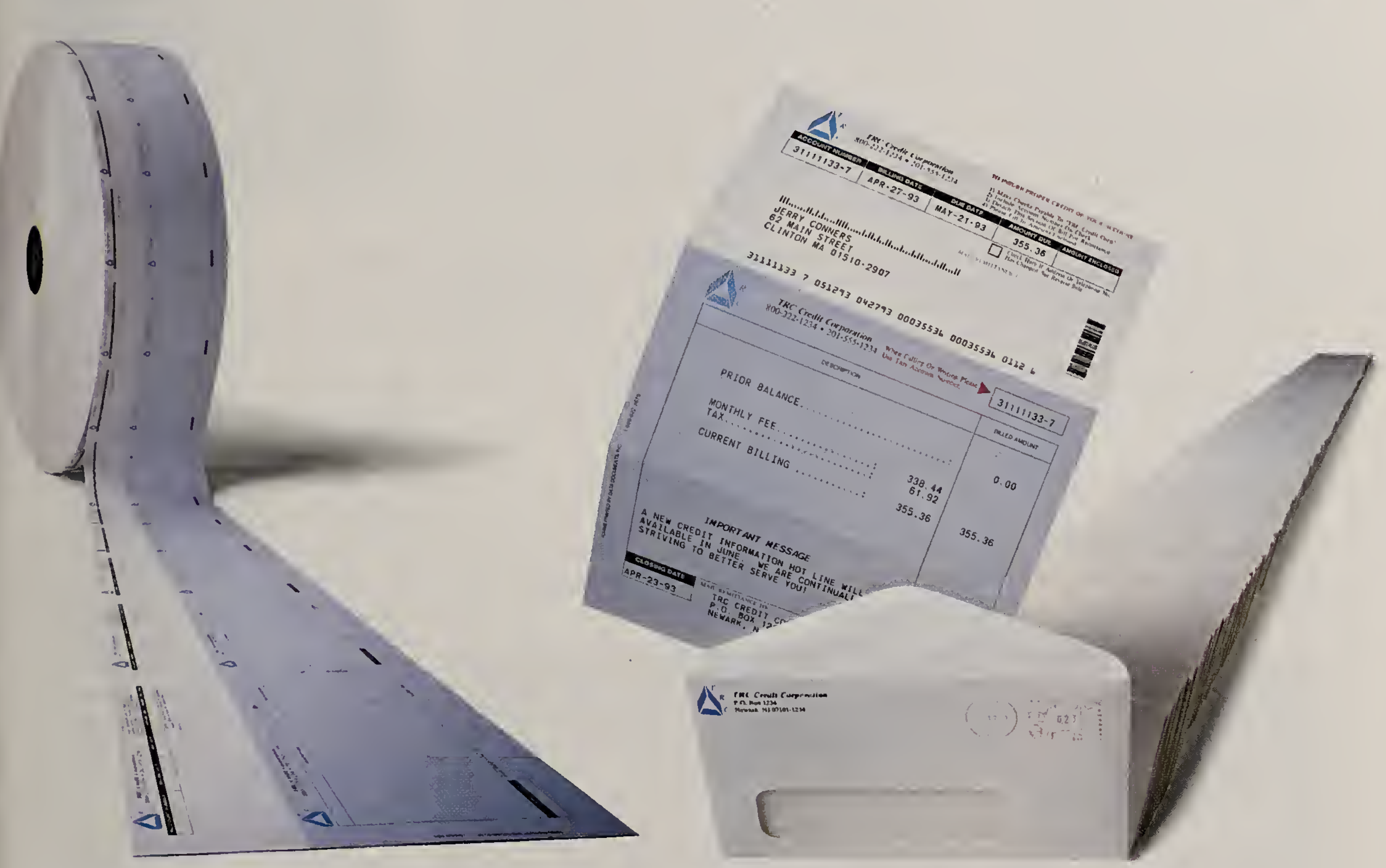

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Aspect Telecommunications' EnterpriseAccess architecture can transform your call center into a vital information-server node on a local or global enterprise network. The architecture extends access to mission-critical, real-time and historical call-transaction data resident on the company's CallCenter automatic call distributor (ACD).

Aspect's RealTime Bridge provides an Ethernet TCP/IP connection from the call-center ACD to a local or global network of PCs and other client or server platforms. From there, users have access to information about calls in progress and to such events as the current state of each agent, trunk and queue. Using the same TCP/IP network as the RealTime Bridge, the DataBase Bridge provides access to all historical and configuration data fields stored in the call center's relational database. Both bridges are available for $2,000 per access session.

Featuring standards-based plug-and-play design, EnterpriseAccess also supports applications beyond telephony and ACD. Three Windows-based PC application software packages are available as well: CustomView Producer, Director and Editor.

Future releases of EnterpriseAccess will support integration of other real-time data streams into TCP/IP networks and client desktops, according to the company. For additional information, call 408 441-2200.

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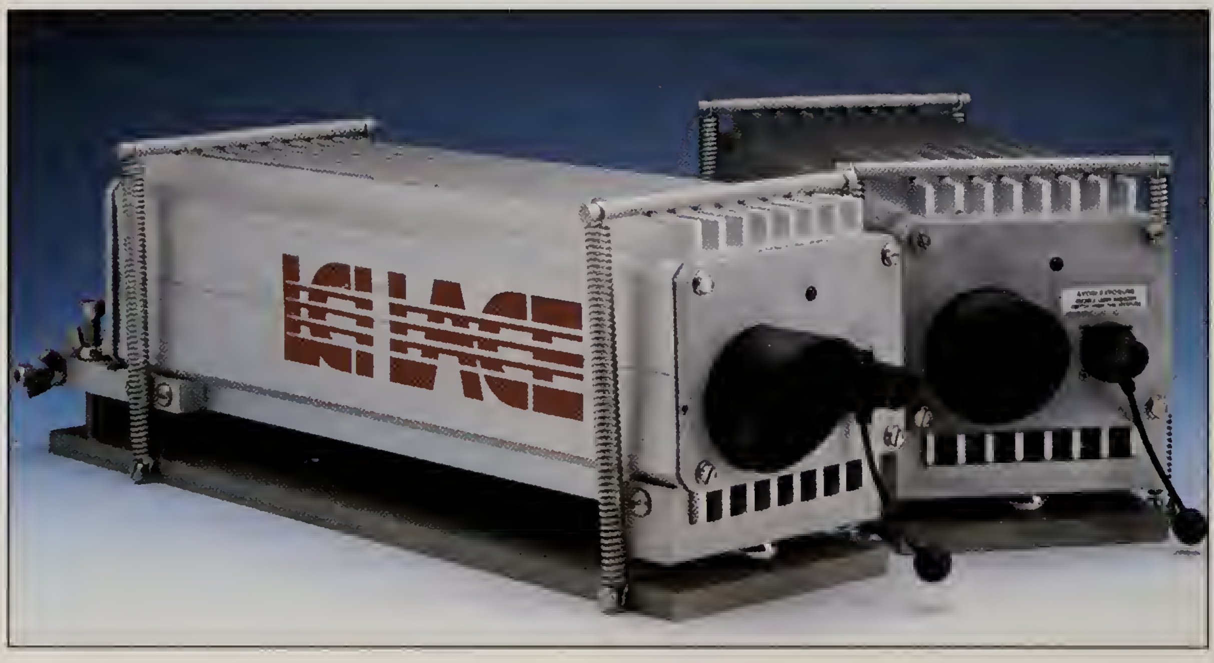
Installing video security or monitoring systems can be a costly proposition, involving cable installations, right-of-way permits and licensing regulations. Laser Communications Inc.'s wireless video-transceiver series features one- and two-way video-transmission capabilities and a video bandwidth of 7.5MHz for high image resolution.



The NetWare-compatible products use laser technology to transmit information through the air up to 1 kilometer between the video camera and monitor. The video transceiver can relay camera operating instructions by transmitting pan, tilt, focus, zoom and remote-switcher commands over its laser communications channel.

In addition, the series, which supports up to 16Mbps without speed degradation, can be used to interconnect LANs, both token-ring- and Ethernet-based. The company is touting the laser series as a cost-effective alternative to coaxial-cable, fiber-optic and microwave video-transmission systems. For example, the L14-15 is available for $10,700 and includes two-way audio and either black-and-white or color video. And the L00-1X laser data transceiver costs $11,550; it comes with an RS-232-C, RS-422-A or audio link.

For further information on available models, call 717 394-8634.

Souped-Up Servers

As attractive as the benefits of client/server are, the technology simply has not been powerful or reliable enough for many organizations' high-volume, business-critical applications. A new generation of fault-tolerant, open-systems servers from Pyramid Technology Corp. may offer companies the improvement they've been waiting for. According to Pyramid, known for its high-end RISC servers, the Nile Series offers mainframe-class performance via a RISC-based architecture and 64-bit hardware technology.

The first system in the series, the NS150, features initial configurations ranging from four to 16 CPUs, with total performance estimated to be higher than 1,000 transactions per second. The Nile Series also uses Pyramid's cluster technology, which provides near-continuous availability even during failure/recovery and maintenance procedures. Since the system enables automatic recovery from most single points of failure, it is aimed at such business-critical applications as stock-exchange trading.

Pyramid's error-reporting network gathers and continually monitors information about the system, and online and offline remote consulting/analysis provides users with access to preventive maintenance and configuration information. Entry-level configurations start at less than $500,000. For more information, call 408 428-9000.

CIO

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Publish or Perish

Faced with strict SEC requirements and increasing competition, Fidelity Investments had no choice but to speed up its mailings of shareholder reports. After reengineering the process and implementing an electronic-publishing system, the company's payback was even greater than expected.

Fidelity Investments may be the largest mutual-funds firm in the country, but until recently its approach to processing documents was anything but state of the art. The Boston-based company generates 8,500 pages of shareholder documents annually, and SEC regulations require that it get those reports out to customers within 60 days after the close of the fiscal year. At the same time, Fidelity is under pressure from competitors that can do the job in 50 days or less. But Fidelity was having trouble meeting—let alone beating—its deadlines. Senior management was determined to start getting documents out on time, every time.

Fidelity's document-processing system was a time-consuming combination of manual assembly, data reentry and author review. The solution, decided Brian Degen, director of publishing services and technologies, was to reengineer the shareholder-reporting process and implement an electronic-publishing system. The result: significant cost savings and a substantial reduction in cycle time.

Degen and his cross-functional team began by defining their objectives, outlining existing processes and creating a flow diagram to determine where they could save time. The procedure, they realized, was unnecessarily complex: Fifteen departments composed different pages of the report, which were manually collected, assembled, packaged and dispatched to an outside typesetter. The typesetter reentered all the data and returned the documents to Fidelity a few days later. The pages were then dispersed to the original creators for several review cycles: 38 percent of cycle time was spent reviewing, editing and proofing the documents.

Fidelity's first step in streamlining this process was to form a centralized division charged with overseeing production. Called shareholder reporting, the group coordinates document flow among the departments, including fund reporting, legal, public relations and print/mail operations.

With process control centralized, the company implemented an in-house, electronic-publishing system using Interleaf 5 from Interleaf Inc. Running on a Digital Equipment Corp. Unix platform, the software controls document production from design through finished product. Because it uses object-oriented technology, Interleaf 5 reduces multiple data-entry steps by allowing reuse of key information. Material such as document design and content—logos, pictures, footnotes and performance charts—resides in centralized "libraries"; departments simply retrieve the data, rather than key it in every time it is needed. This also improved document quality and readability by increasing the consistency of language and design.

Ownership is built into the new process because each person takes responsibility for the quality of his or her own material. "Quality is better because data is coming from the original source," says Degen. "Our productivity is way up, and we eliminated sources of error in the data-entry function."

Investments in electronic-publishing technology enabled Fidelity to save $800,000 annually in outside-typesetting costs and increase internal-typesetting productivity on original composition by 75 percent. Using the new system, Fidelity now mails its documents within 40 to 50 days after year end, instead of the previous 55 to 65 days. And the company has used the productivity savings to increase publishing volume by 360 percent over two years while increasing head count by only 70 percent. The system has proven so successful that Fidelity sees uses for it outside of shareholder reporting. "With the time savings and competency developed, benefits are spreading throughout the company," says Degen.

–Nancy Hitchcock

VITAL STATISTICS

Organization: *Fidelity Investments, Boston*

Application: *Electronic-publishing system*

Sponsor: *Brian Degen, director of publishing services and technologies*

Technologies: *Interleaf Inc.'s Interleaf 5 running on a Digital Equipment Corp. Unix platform*

Scope: *An array of departments including fund accounting, legal, editorial services and public relations*

Objective: *Cut cycle time for producing documents*

Payoff: *Investments in electronic publishing save approximately $800,000 in outside-typesetting costs per year. The system also improved internal-typesetting productivity on original composition by 75 percent and reduced cycle times by up to 25 days.*

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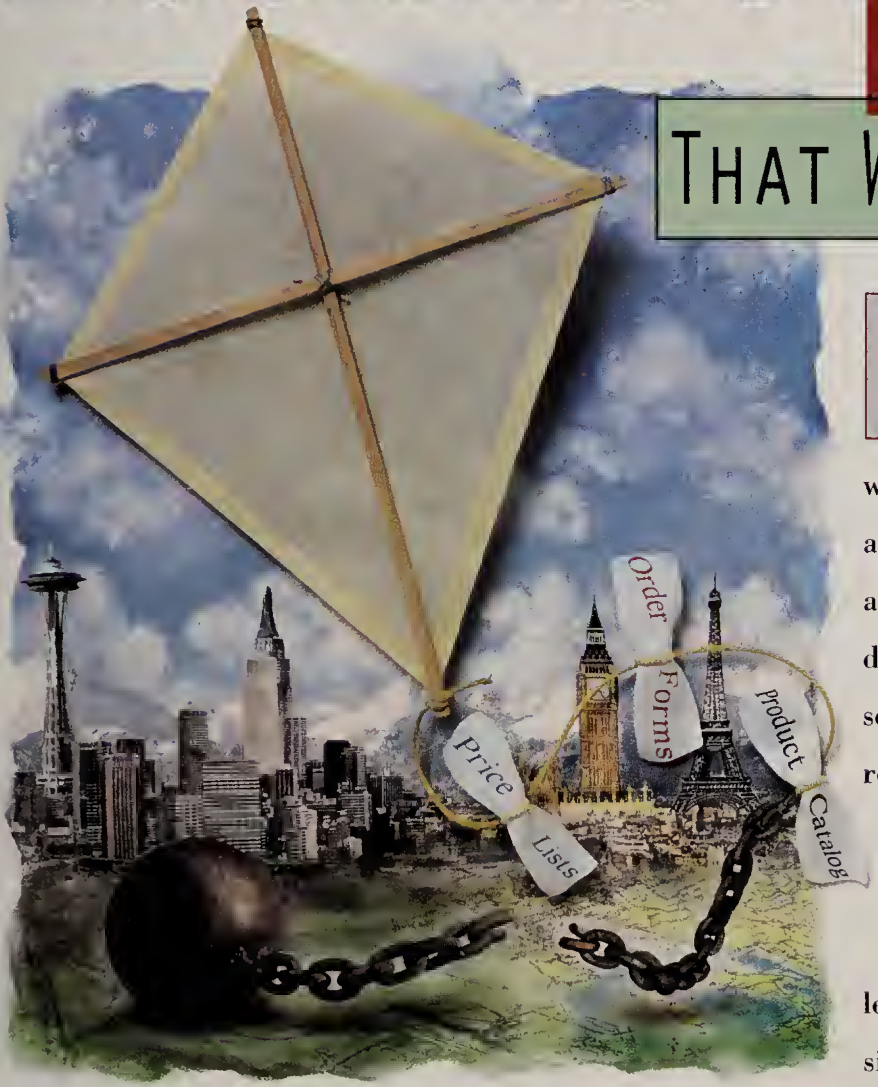

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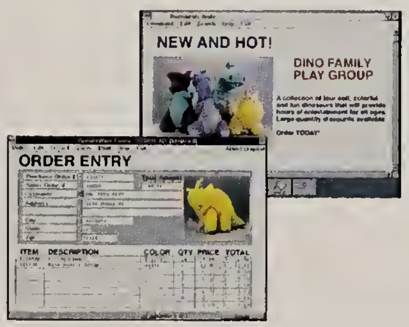

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